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## ORIGINAL ARTICLES.

### THE SOCIAL EVIL IN UNIVERSITY LIFE: A TALK WITH THE STUDENTS OF THE UNIVERSITY OF PENNSYLVANIA.

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I CONGRATULATE those of you, to-day, who are just entering this old University. Those who have already learned to call her alma mater need no word from me to tell them of the joys and responsibilities of college life. It is because some of us older college boys have learned just what you are to encounter in the four years of city and university experience, that we have called you together for a frank talk on matters that will have a vital influence on your college- and after-careers.

You will have guarding over your interests, and watching with a keen and kindly eye your successes and failures, one of the warmest hearted men that our Provost's chair has ever held. In the midst of responsibilities that would bend the shoulders of an ordinary man, you will find that he has a smile and a grasp of the hand for each one of you, no matter how unimportant you may consider yourself to be in your particular sphere of activity. He wishes you simply to assure him that you are active in that sphere. I have learned to know him as a man whose aim in life to-day is the genuine benefit and happiness of young men like you and me.

In close touch with your Provost, and equally a man, you will learn to know and love one of the best friends of my college days, and one who learns for the first time to-day, perhaps, that this influence was stronger than almost any other in making my college life of whatever value to myself and others it may chance to be. If he could but know how many men have left these walls with the same sentiment in their breasts, he would tell you, as I now do, that he has not lived in vain. I have seen Vice-Provost Smith in the midst of his day's work, stop as each of a number of thoughtless students pushed his way into the office, and show the same warm interest in the last one that sent the first away with the feeling that he had talked with a friend and one whom he could trust.

For myself, I can simply say that I have worked among you as one of your university physicians for over three years and that I have considered my work a rare privilege and a sacred trust. I have learned many things of student life which escaped me while a student myself; and I have learned the value, during these thirteen years of college associations, of the opportunity of looking on many of the problems that

will soon come before you. Perhaps they mean more to me because I have seen many of them both from the standpoint of the student and later as your confidential medical friend.

One of these problems involves a temptation that meets every man sooner or later, will certainly meet you during your college days, and perhaps has already stood in the path of some. I refer to the temptation to risk your health of mind and body by illicit intercourse with women, whom you would be unwilling and even horrified to consider of the same order of being as your mothers or your future wives. Every large city swarms with such women, nearly all of whose lives are wrecked by marital infidelity before they begin to prey upon the happiness of other homes.

Shall I tell you in another way why you are gathered here to-day? Last spring a country boy came to Philadelphia for the first time. He was induced by friends to visit a house of ill fame. He was infected by the woman with gonorrhea, and, though at the time none of the ordinary symptoms appeared, in a day or so his eyes began to smart. Another of his so-called friends advised him in all earnest to wash his eyes in his own urine. He did this at once. Gonorrheal inflammation developed, probably had developed before the urine made the infection sure, and to-day that country boy is totally blind and for his lifetime.

Your Provost and Vice-Provost have watched with increasing interest and alarm the influence upon those who have gone before you of the temptations offered by university life in a great city. They have asked me to talk to you to-day of this matter as one of the students' physicians, and, therefore, one who ought, and, I am glad to say, does, hold intimate and strictly confidential relations with every one of you that cares to use me as an adviser and friend.

In the last three years of my work among the students of this University I have seen you at times and under conditions, that have led you to open your hearts to me; whether always through friendship or necessity it is at present unnecessary for me to inquire. I have seen many of you at times when you would have given worlds had someone told you in advance of the facts which I hope to make plain to you to-day. I have listened, more regretfully on each occasion, to the old cry, "Why did not someone tell me in time?" until it seemed impossible that another year should be allowed to slip by without giving those who are coming on the warning of the experience of those who have gone before. I have seen some of you injured physically, and for life, by either the lack of some such frank, clear discussion of the dangers of impure living, or by wil-

ful disregard of advice in the few instances in which it had been offered.

In my capacity as university physician, therefore, and one who holds himself ready to serve you at any time, day or night, I wish to talk briefly but earnestly of two of the almost inevitable results of impure sexual life. I have said that the opportunity of lowering yourselves in the eyes of God and of true men will certainly be presented to you within the nearest future. In a large city this is unfortunately and peculiarly true. Example, fear of ridicule, or curiosity may be the impelling force; and if any one influence has had a dastardly effect upon the lives of young men, ridicule is that one. Whatever or whoever you are we are interested in you, and want you to know to-day and finally that you transgress the laws of pure sexual living at your peril, and perhaps literally, sooner or later, at the cost of your life.

It may be stated with the barest possibility of error that no man who has once had sexual intercourse with a woman not his wife, fails to make a habit of the crime. It is equally certain that no one has ever indulged in such excesses without sooner or later contracting some venereal disease. This is so literally true that such conditions are considered among medical men as inevitable attendants upon impure intercourse with the other sex. Every preventive has been tried and all have failed. On the other hand, let me say to you as a physician voicing the consensus of medical opinion, that there has never existed a man who could not live a healthy, active existence, throughout his whole life, in the absence of any sexual intercourse whatsoever. It is a common story among college students that after a certain age a man requires sexual satisfaction, if he is to preserve vigor of mind and body. Let me characterize this idea as a curse that has done more harm in the home-world than any other influence, and one which, together with ignorance of the inevitable results in the way of venereal infection, has made it unsafe for men and women to drink out of a neighbor's glass, or for men to accept a pipe, or a cigar, or a cigarette, from the fingers of a friend unless they know him through and through in a way that few men are known. Nature has provided for man's sexual necessities in a way, with regard to which you do not need to be informed, and that provision is one that is as ample as it is providential. If, in addition, a boy has a wise father, who remembers his own temptations, and takes a judicious and the only fair way of strengthening his son against them, by opening his eyes to the danger of transgressing Nature's laws, he is well equipped for growth into noble and healthy manhood. Would that every boy had such a father! Too often the whole subject is treated in open conversation as a necessary and unavoidable evil. We should look upon the man or woman who trifles with the subject of sexual impurity as a criminal either by virtue of ignorance or by intent, and we will even then not reward them as they deserve. We have

come to a time when, if the young men of this and other countries do not engage and conquer the social evil, it must be accomplished by the enlightenment of the pure women that still exist; and when your mothers, and your future wives, and your daughters, are warned even against their sons, husbands, and fathers, because they are dangers to humanity, you will begin to regret that you did not lay hold on the cause in time. The trend of the law is in this direction, and by the nature of things it is bound to insist upon it sooner or later. Lincoln is said to have made the remark that "every man who contemplated marriage should stand over the doctor with a club and make him tell the truth in reference to the chosen partner for life. Also that the parents who would allow a girl to marry a man without knowing as clearly as could be known his physical as well as his moral condition, deserved to be scalped." Unfortunately, no one is in a position, as yet, to know these things certainly, and no woman will believe them of her lover. Yet men have married women the day after lying with a common prostitute, and days, and weeks, and months after, syphilis or gonorrhea has appeared in the man, who invariably has been ignorant or cowardly enough to transmit the disease to his wife rather than acknowledge his condition. Many another man has struggled for months toward a cure and has been pronounced well by his physician, only to infect his wife with his latent disease. Add to this the fact that the average physician is unqualified to treat gonorrhea and syphilis successfully, and should not attempt the task, and you will learn how helpless the victim of such a disease is. In all this great city there is hardly a hospital bed that will admit openly, and as such, a subject of venereal disease. There is a tremendous duty to-day upon physicians and parents to learn and disseminate the truth in regard to sexual sin and my conscience will be clearer when I have spoken to you. Let me talk to you now of two conditions, gonorrhea and syphilis, the two most frequent attendants upon harlotry, and two diseases that are far more contagious and widespread than tuberculosis, which is occupying the attention of the public to-day. At the end of our discussion I trust I may have proved assertions which may seem to you at first both harsh and extreme.

#### GONORRHEA.

It may be a significant fact to you that the first student treated by me after my appointment as student's physician, and the last one seen at the close of the session of 1902-3, were suffering from gonorrhea, contracted during illicit intercourse with a woman. Both of these were sons of refined, well-to-do fathers and mothers. Both of them were ignorant of the imminent danger of infection, and both quoted the oft-heard lie, that "a case of gonorrhea is no worse than a bad cold." Both men had been told this lie by other students, who had themselves previously contracted, and suffered from the dis-

case. One had repeated attacks before consulting me, and was then in a serious condition. One of these students is apparently well to-day. The former will carry traces of his gonorrhea to his grave and can never be the father of a child. He should certainly never marry, both for this reason, and for fear of infecting his wife.

During the three intervening years between these two cases, a number of students have consulted me each month, and many with the same story of ignorance of danger. All knew, no doubt, but few realized the fact until too late. Some few, through despair of being cured of a chronic condition, had thrown precaution to the winds, and contracted new infection and new trouble. In one instance that came under my care, a woman, herself a medical student at another institution, had infected five men with gonorrhea, and one of them either she or some other had also infected with syphilis. Two of these men were brothers, yet it would appear that none of the five had confided in any of the rest.

It seems strange that it should not be generally known by students that there is little likelihood of a woman, who admits of such attentions, herself escaping venereal infection, no matter what her social status or what her precautions. It is a rule borne out by medical experience, that a woman who will encourage the advances of one man will invariably do the same with others. It is also a frequent experience for a number of men separately to consult a physician, and assure him that the subject of their attentions could not possibly have infected them as she had never had intercourse with any other man, and yet the facts appear clear to the physician that she had infected each and every one. It is safe to say that every harlot (I use this term advisedly, with reference to her of good family connections, for there are such, as well as the common prostitute; they belong in the same category) has at some time been infected with gonorrhea; and if one stops to learn how difficult and rare a thing it is to thoroughly cure a woman of gonorrhea, he will understand also how dangerous it is to trust himself at any time in her subsequent life within her infected presence.

A few statistics may serve as an illustration, not only of the prevalence of temptation on the streets of a great city, but of the ubiquity of gonorrheal disease in its many forms. It has been well characterized as the most widespread of all contagious diseases, with the single exception of measles. It has been shown that in some of the cities of Europe more than one-half of the entire population, and more than three-quarters of the male population, suffers from gonorrheal infection. Dr. Allen reports from one hospital dispensary in New York City 86,000 cases of all kinds treated in 1900, of which over 3,000 were cases of venereal disease. In 1903 we learn from a commission appointed to study the subject that there are in New York City to-day about 200,000 syphilitic subjects, and probably four times as many (800,000) cases of gonorrhea. To care

for these cases and to prevent the spread of infection, there is one bed for every 5,000 cases. This ratio holds good for nearly all the large cities of America. While all prostitutes are considered gonorrheic subjects, it is estimated that every fourth one is qualified to transmit syphilis. In Prussia it is estimated that there are annually 773,000 cases of venereal disease. Still more exact are the following figures: Out of 1,155 patients recently reported as treated at Hot Springs, Arkansas, and coming from all over the United States, it was learned that 818 (70 per cent.) had at the time of examination, or had had gonorrhea; 337 had never contracted the infection. Most of these patients were from the so-called better classes. The ages at which the gonorrhea was contracted varied from ten to fifty-seven years, averaging 21.8 years. Three hundred and eighty-two cases were below twenty-one years of age, and 58 cases were below seventeen years. Of 60,000 sick soldiers in our army of occupation in the Philippines 10,000 were cases of venereal disease; nearly all of these have since come home, and many remain uncured to-day.

These figures will suffice to show that gonorrhea is so frequent a condition that it literally leaves few homes unscathed, if the truth be fully known. As already stated the prostitute offers a ready infection to the male urethra in its virgin state, and a still more likely one to a chronically inflamed mucous membrane. Probably she can and does infect as long as she lives, and undoubtedly she does infect many men in one day. Long after she is visibly cured she may be a source of virulent infection. The result is that she may be honest in believing herself free from danger to others, and become the more dangerous in the belief of her cure. Under the most benign circumstances she is a danger, and under the worst she is a scourge. Infected many times, with each new occasion she becomes freshly virulent. The result is that the world is to-day overrun with venereal disease.

Let me ask a few questions that naturally arise; and in their answers endeavor to emphasize the points I wish to bring home to you.

*What is gonorrhea in the male subject?* An extremely infectious disease, usually involving some portion or all of the urinary passage from the bladder outward. Any portion of the body may, however, be infected, including the eyes, the skin, the nose, ears, mouth, bowel, and any or all of the internal organs. Its minimum average duration is six weeks. It often lasts for years, and unless promptly and intelligently treated, its effects often remain evident for life. It is a disease for which eminent specialists are constantly seeking some new and effective remedy, which has not yet been found. The question is still under discussion whether either syphilis or gonorrhea is certainly curable. One prominent student of the subject says of the latter "I have studied and treated gonorrhea for fifteen years, and I feel to-day that I know less about that disease than I thought I did several years ago." Another writes

"A large number of chronic gonorrheas, speaking generally, remain uncured. Some of these may be explained by the indolence and discouragement of the patient, others by want of care or understanding on the part of the physician, others by constant reinfection, and still others from no tangible cause, all gonococci having 'apparently' been eliminated." Still another says "the importance of gonorrhea with that of syphilis is 100 to 1, not only from the standpoint of the number of persons attacked, but also from the standpoint of the gravity of the lesions and their perpetuity."

Have I said enough to prove to you that gonorrhea is "worse than a bad cold"?

*What are its possible complications and their frequency?* Among the most frequent of the complications of gonorrhea are stricture of the urinary passages and sometimes even of the bowel, inflammation and destruction of the internal genital apparatus (the testicles and the tubes leading thereto), blindness, bladder and kidney disease, abscess at any point in the body, and joint rheumatism—all frequent conditions. Less frequent are septic blood infection (usually fatal), brain disease, degeneration of the spinal cord, heart disease, bone disease, peritonitis, pneumonia, and death. You may ask "Why have we not heard before of the serious features of what we believed to be a temporary inflammation?" I answer "Because every case of gonorrheal infection is concealed more jealously than a crime would be, and, if serious complications follow, the specific origin is denied or withheld by both the victim and his doctor." Last winter an officer of the University showed his interest in one of the students by calling on him in the University Hospital, and was told by the student and by the nurse that the trouble was appendicitis, and was shocked and disgusted later on when he was told that the case was one of gonorrhea.

A large percentage of cases of chronic gonorrhea leave behind a stricture of the urethra. Nearly all leave an irritable and often a diseased prostate gland, many leave an irritable or diseased bladder. Between 10 and 20 per cent. of all cases of infantile blindness are due to gonorrheal infection. Statistics of the German Empire for 1894 showed that 80 per cent. of all children born with healthy eyes who became blind, did so as the result of transmitted gonorrhea. In that country there are 30,000 cases of blindness to-day due to gonorrhea, and mostly transmitted from other persons. In spite of all the latest knowledge and the newest methods, approximately 600 cases of blindness occur annually in Germany from this one avoidable cause.

In this country from 25 to 50 per cent. of the blind in institutions owe their loss of sight to gonorrheal infection. In one year in New York City 136 cases of gonorrheal ophthalmia were reported.

Inflammation of the epididymis (the tube from the testicle outward) is a very frequent complication, often resulting in absolute sterility, as

will be shown later. Gonorrheal rheumatism is also a serious affection, usually occurring in a large joint like the hip or knee, and frequently leaving a permanent disability. The other complications mentioned occur with varying frequency, depending upon the attention paid to the condition by doctor and patient as well as upon the promptness with which the disease yields to treatment. While far less frequent they are even more serious. There is no question that many cases of kidney disease owe their origin to gonorrhea, many resulting years after in fatality. During each year a number of deaths are recorded as directly due to infection by the gonococcus of one of the vital organs of the body. While writing this statement I have before me the records of five fatal cases that have come easily to my notice, three from gonorrheal peritonitis, one from gonorrheal valvular disease of the heart, and one of gonorrheal septicemia which will be mentioned later.

*Can gonorrhea be cured, and can the patient be sure he is cured?* To the first question probably "yes," and to the second certainly "no." We have already heard the doubtful statements of eminent students of the disease. Neisser, one of the first authorities in the world on venereal disease, claims that gonorrhea can be cured. Your own professors of surgery, White and Martin, also claim that it can. All admit that very many cases are *not* cured, owing to one reason and another. Every year brings forward new instances of old, supposedly cured infection relighted by disease, debility or debauch. In children, undoubtedly, the prognosis is better than in adults, probably because the disease is taken in hand earlier and more systematically; also because all the tissues in the child tend toward healthy growth. Frank in Germany has shown, however, that the gonococcus may remain quiescent in the prostate gland for months and years. No symptoms remain, yet the disease may be relighted and others be infected. I have already quoted Van der Poel to the effect that a large number of chronic gonorrheas remain uncured. Köppen cites many cases in which all symptoms had disappeared, and yet the disease remained latent. In regard to one of these he says: "Not one sign was left of a previous gonorrhea." Six years later there was irritation in the urethra, and he obtained gonococci from the urinary canal. In another case none of the germs of gonorrhea had ever been discovered in the discharge, though the clinical picture was complete. Six years later he found gonococci in the urethra. He concludes his article with the statement, "Gonococci can exist for years in the organism, as proved by numberless cases." A case is described in one of our own medical journals, dated September, 1903, in which a man infected his own eye with gonorrhea after six years during which the disease appeared to be cured. At the same time all his joints became involved, as well as the tendon sheaths of one foot. The gonococcus was obtained from

the discharges of the eye, proving the real nature of the infection. Our answer to the question, then, must be that under favorable circumstances gonorrhea probably can be cured. No case is cured until all gonococci have disappeared from the urethra. Many doctors either do not know how or do not take the trouble to look for these micro-organisms. Many patients never return for completion of the cure, after the symptoms have become tolerable. Under the best treatment, it should be remembered, success may not be attained. Only time will show whether an actual and permanent cure has been secured. No victim of gonorrhea can be absolutely sure, when the symptoms have disappeared, that he is cured of his infection or that he will not infect his wife years after.

*How long after an attack can a man infect a woman with gonorrhea?* We have already seen in our answer to the preceding question that years may pass by and a man may still be infectious to a wife. As long as there are active symptoms, transmission of the disease is likely. When these have subsided the danger decreases, but never disappears until the last gonococcus has been destroyed. If gonococci can live six, ten and fifteen years in the organs of the body, as they have been shown to do, probably they can live longer, and to an almost indefinite time. The only inference from the cases cited is that the gonorrheic subject must never be surprised if he finds in after years that his disease has remained latent, and that he has infected some innocent person. The possibility is always before him.

*What are the possible and permanent injuries from an attack of gonorrhea?* We will at present consider only the male sex. It has already been shown that fatality is occasional. The most frequent permanent disability is a chronic gleet or catarrh of the urethra, prostate gland, the bladder, or all three. Such a chronic inflammation of the urethra usually results in stricture of that passage. Stricture causes obstruction to the flow of urine, and as a consequence bladder inflammation often follows, and the disease often spreads from there to the kidney by direct extension. Gonorrheal rheumatism very frequently, we may say nearly always, leaves a crippled joint.

By far the most serious sequela of gonorrhea is sterility, or lack of power to produce progeny. The commission appointed by the American Medical Association estimated that 42 per cent. of all gonorrheic subjects become sterile, and that many more cause sterile marriages after the first childbirth because of the infection and consequent sterility of the wife. Czerny says that "50 per cent. of all sterility is due to the husband's gonorrhea." Morrow says "syphilis curses the child; gonorrhea prevents its existence by rendering the male sterile."

President Roosevelt has recently spoken of the social evil, meaning the wilful sterility of the wedded life. Would that he might cry out from his presidential chair against the dangers of

venereal infection and the real cause of sterility of the sons of America.

*What are the results of gonorrhea in the woman?* Fewer women, by far, are cured of gonorrhea than is the case with man. I shall not speak, however, of the clinical picture in the female sex. It will be sufficient to say that with the woman gonorrhea means almost certainly an infection of her internal organs, and sooner or later a serious operation. Pregnancy increases the danger of upward and general infection. Sometimes there is no serious sign of trouble until the woman becomes pregnant. Nöggerath states that 50 per cent. of sterile women, owe their sterility to gonorrhea. Neisser, already quoted, fixes the percentage at a higher figure. Ascher found that of 227 sterile women in his care 121 were sterile owing to gonorrhea. Sängner says that abortion occurs as frequently owing to gonorrhea as it does as the result of syphilis. Nöggerath cites the cases of 53 women, pregnant during a gonorrhea, of whom 19 aborted. Fröhingsholtz cites 101 cases, of which 23 aborted, and 7 went into premature labor. Price of this city says that of 1,000 abdominal operations in women 95 per cent. were the result of conditions due to gonorrhea. The statistics of the German Empire for 1894 showed that 80 per cent. of the women who died of uterine or ovarian disease died as the result of conditions dependent upon gonorrhea.

Have I convinced you yet that the disease is of more significance than a "bad cold?" If not let me add a final argument and if you resist the plea of the children no influence on earth can save you from an experience which you dearly earn.

*Can gonorrhea be transmitted to others than your wife?* From what I have already told you, you now know that the vast number of cases of gonorrhea in the woman in married life are instances of innocent infection on her part. We have omitted until now the possibility of infecting others, and by means other than by sexual intercourse. First, and least important, by all odds, you can infect your own eyes, nose, mouth, or bowel, and probably will unless you learn the virulence of the gonorrheal germ. Next you can infect, and usually do infect, the bedclothes, towels, napkins, handkerchiefs, knives, forks, your pipe, and all articles of ordinary and constant use, and sometimes, by means of them, your wife and children, your friends, even, mayhap, your mother. It is the result of nature's protecting laws and not your care that you fail to pass to all who are around you the curse that you have brought upon yourself. Let me prove this to you in all its hideousness of truth. Cook has reported recently a case of a four-year-old daughter of a thirty-five-year-old father, from a refined family. The father contracted gonorrhea in the usual manner, and soon the little girl developed the disease. There was absolutely no other traceable source of the infection. Morrow cites the case of a little girl into whose eye a playmate's finger had been poked. The injured child suf-

ferred a typical gonorrheal conjunctivitis, from the discharge of which the gonococci were obtained. Not long ago there was an epidemic of gonorrhea among the children of Posen in Germany. In two weeks 236 children contracted the disease, which was finally traced to the use of the public bath. Someone had infected the pool. In spite of the constant suppression of such cases there are many such reported in the medical journals. I have myself seen in hospital work many cases of gonorrhea in children under five years, sometimes transmitted by accident, sometimes by intention. Only when the law imposes a fine and imprisonment upon him who knowingly infects another person will this crime be blotted out; it may be that a sterner penalty still might be effective (as already suggested) and meted out at the hand of the surgeon's knife. Innocent infection of children occurs usually among those who sleep in bed with their parents or use the same towels or table linen. Night clothes, bed linen, towels, sponges, underclothing, soap, the water closet,—if once infected, may retain the germs for weeks and months, and the origin of the infection may, sad to say, never be discovered. On the Scandinavian peninsula every case of venereal infection is reported to the authorities, as it will be some day here. There will then be fewer cases of venereal disease, and fewer innocent victims. I believe, moreover, that in this procedure lies the remedy for marital infidelity, and for sexual sin in all its forms.

There is another serious phase to the gonorrhea of children. When once infected they also transmit the disease, and oftentimes in the same manner as their fathers, and with equal avidity. Wolbarst, in New York City, cites 22 cases occurring in his work during two years, in children between eighteen months and twelve years of age. The usual mode of infection was attempted sexual intercourse. On investigation he found that it was by no means an uncommon thing in this district for children not yet in puberty to indulge in sexual intercourse. He saw three cases of boys, four, ten, and twelve years respectively, infected by girls between ten and twelve years. Many other cases were due to the child sleeping with parents, brothers, sisters, who had gonorrhea. Cotton calls attention to a "string of little girls coming to my clinic suffering from gonorrhea. A week later," he says, "my assistant brought a boy of ten years who had been infecting these little girls." Last year I saw more than one student of this University who would not return home for his holiday, when he heard that he must be careful not to infect himself or his family. I shall never forget the expression of one who said "God! you don't mean that I might give this to my mother."

Boys, forget yourselves! If you owe anything to that mother, sister, perhaps some day a wife, your children, your friends, servants, even the laundry woman,—do not risk this disease!

Just a word as to the mortality of gonorrhea. This is occasional, though by no means as high as

that of syphilis. Only last year there came to my notice the case of a young man, dying from a diffuse abscess and pyemia (blood poisoning) of unknown cause. His life was pledged to a lovely girl, who nursed him on the edge of his grave. Both were of our nation's best blood. Cultures from the pus of his abscess and from his blood showed colonies of the gonococcus, and a history of an almost forgotten attack of gonorrhea was obtained. It is almost too horrible to think of the crime of the future had he lived to marry the woman who was nursing him in an ignorance of the cause of their double sorrow as complete as his own.

Such a tragedy is being enacted certainly many times every year in this wide world, and bids fair to become an even more frequent occurrence. I have mentioned four other deaths to you. The aggregate of deaths from the sequelæ and complications of gonorrhea amounts to no small total, and must soon attract the attention of those who have heretofore looked on the disease as a passing ailment.

Have I made plain to you that as the result of one rash act

*Your wife* may be a lifelong victim,  
may be deprived of the power of conception,  
may lose her life by an operation or by infection.

*Your child* may lose its chance of birth,  
may, if born, be deprived of sight, or hearing,  
may, if a male, suffer consequences equal to your own; if a female, suffer like the mother.

*Yourself* may never be cured,  
may infect those who are dearest to you,  
may lose your own life and those of others.

Let us now for a brief moment consider syphilis.

#### SYPHILIS.

Probably far less need be said to you about this disease, as its name is known to most of you, and few speak of it lightly. When you learn that many of those who surround you in your daily life are virulent with this disease, and that changeling children are born into our best families as the result of it, and that prostitution is likely to fix the unyielding grasp of syphilis upon you, it may act as a persuasive to keep you true to your ideals.

*What is syphilis?* It is an infectious disease of the whole system, usually making itself first known by means of what is called a chancre, or initial sore. This is followed usually by a general skin eruption, swelling of the glands, falling of the hair on all parts of the body, and later on by serious disease of the blood vessels and internal organs. It is usually contracted during sexual intercourse; in the case of men, usually in prostitution; in the case of women very fre-

quently in an innocent manner and in wedlock. It involves a course of treatment of at least three years, and sometimes resists all treatment. It is found in the highest and lowest classes of society.

*How prevalent is the disease?* Fournier states that one seventh of the population of Paris is syphilitic, while in Russia whole towns have been decimated by the disease. The victims in the latter country are mainly women and children, and many cases are due to the kissing of sacred images and to the embraces of syphilitic acquaintances. In certain of the European countries 25 per cent. of the population of some of the villages is syphilitic, in most instances due to innocent infection, prostitution being almost unknown. China and Japan are overrun with syphilis. It has been estimated (Dictionary of Statistics, Mulhall) from the cases in the military hospitals in Europe that between 7 and 43 per cent. of the entire soldiery is infected. The average national percentage was found to be 14 per cent. The report of the American Dermatological Society finds that 11.5 per cent. of all skin diseases are syphilitic. And in our own country again. Out of 1,485 cases of all kinds treated and questioned at Hot Springs, Arkansas, in 1901, 831 had had syphilis. Gihon estimates that there are 2,000,000 cases of the disease constantly in the United States.

Sänger has shown that nearly one-half of all the prostitutes in New York City freely admit that they have had syphilis, and half of these gave birth to syphilitic children. And as a gloomy shroud for all of these figures, Morrow finds that 70 per cent. of the syphilis in the women of New York City is the result of conjugal infidelity.

*Can syphilis be cured?* This is a far more difficult question to answer than that with regard to gonorrhea. My personal belief is that it usually can, if well treated and in time. A cure, under the most favorable circumstances requires at least three years of constant medication. Many cases require a longer time. Some prominent syphilologists declare that the disease is incurable. Certain cases are absolutely incurable. Among these may be cited one reported recently by Schamberg, which was under treatment without success for eight years and two malignant cases reported by Fournier in 1899. The general prognosis of syphilis is probably a good one. The constant danger that the treatment has not been radical or thorough enough always threatens, however, and is well expressed by Osler when he speaks of "the extraordinary frequency of the cerebral and other complications in persons who have had the disease, and who may even have undergone thorough treatment." Howard has reported a case seemingly cured and relighted, after a year of quiescence, by influenza. Many other cases appear to be free from symptoms for a time, and then die of insanity, softening of the brain, locomotor ataxia, or some other nervous disease.

*How long after infection can the disease be*

*transmitted to others?* During the entire period of what are called the primary and secondary stages. The latter, if the disease has been thoroughly and conscientiously treated, is usually confined to the first few years following the infection. Only in exceedingly rare instances has infection taken place after the fifth or sixth year. Such cases do, however, occur. Sack reported last year the case of a man on whose person appeared an ulcer (gummatous) ten years after the original infection, and infected his young wife, who displayed typical symptoms of a new syphilitic infection. Six months later she also had a miscarriage. Herscher reports a case of contagion from a husband who unquestionably contracted the disease thirteen years previously. Kopelinski has reported two cases of inherited syphilis infecting previously healthy individuals, in both instances a grandmother (an almost unheard-of thing).

*What are the effects of syphilitic infection upon the man?* Perhaps the most serious is the fact that he becomes at once a source of danger to his family, friends, and society in general. This begets the next most serious influence which is the mental condition. Fournier cites 18 cases of suicide in young syphilitics. We have already sketched the course of the disease itself, and need not repeat the symptoms here. Probably the most serious physical damage is done the blood vessels and kidneys. Many a case of apoplexy and aneurism is directly due to syphilitic change in the arteries of the brain or elsewhere. Many cases of insanity are also due to this disease. At present there is an attempt to prove what many authorities believe to be true, that locomotor ataxia is purely and simply a syphilitic picture. Many cases of syphilis become and remain completely bald, with no eyebrows, and no facial hair. Some few severe cases lose all the bony features of the face, the nose and roof of the mouth undergoing complete necrosis (bony gangrene). Many have a persistent skin eruption. Those who inherit syphilis are usually marked for life, and die at an early age. Tuberculosis frequently accompanies or follows syphilis, like the driver of a hearse.

*What are the effects of syphilis upon the woman?* The physical effects are the same as those in the man. If she bears children during the course of the disease they are likely to be syphilitic and otherwise defective. Even more likely will they be stillborn, or abortion take place. There is no other cause of abortion that compares with the vicious influence of this disease.

A syphilitic woman is likely to infect many more persons than is a man. If a prostitute, she probably infects most of those with whom she has intercourse. Even in everyday life a syphilitic woman is a source of great danger. Woman's habit of indiscriminate kissing is the most prolific source of transmission next to sexual congress, and especially in this country, where men confine their embraces to their intimates only and to the female sex, unless it be in the case of

children. A woman's embraces are much more promiscuous, and she proves much the more active in spreading the disease.

*What are the effects of syphilis upon the offspring?* These are two and both are serious in the extreme. First a tremendous percentage of the children born of syphilitic parentage are deficient mentally and physically. Secondly, between 20 and 40 per cent. of all conceptions by a syphilitic woman result in either abortion, stillbirth, or premature labor. Even if born with a competent mind, the child who has inherited syphilis is cursed as Job was not. It is likely to die before it reaches puberty, and is generally marked so as to be an object of pity throughout its life to itself as well as to those who know the cause.

*How can syphilis be transmitted?* By contact with a syphilitic sore during the primary and secondary stages of the disease, also with the blood, with the saliva, or any fluid that may carry with it the discharges from a mucous patch or other syphilitic lesion, etc. Usually the infection is transmitted during sexual intercourse, though extragenital and innocent infections are now recognized to be very frequent, as by means of knives, forks, spoons, drinking glasses, pipes, cigars, etc. Kissing, as has already been stated, is one of the most frequent methods of contagion. There is danger in any abraded surface upon the body when in company with a syphilitic in the infectious stages of the disease. A mother may infect a baby, a baby may infect a nurse, the father may infect the whole family. Weitlander has reported within the last three weeks two instances of infection of entire families, in each case by a small child, known to be syphilitic, who was taken in to board. The infection undoubtedly took place by means of spoons, dishes, etc. If any warning given at this time will take root in the minds of those who are unfortunate enough to have contracted the disease innocently, and to have extragenital sores upon their body, it must be this, that such cases are the most dangerous to mankind. The very irony of this fact makes it the more pitiful, and the crime of the original infection the greater. I do not think I need emphasize the burden of the cry of the infected one, who would warn each of you from the possibility of becoming a danger to your family, your doctor, and all around you.

*What is the mortality of syphilis?* In England in the period 1880-90 1,742 males over five years of age died from the disease. Whole towns have been decimated in Russia. Last year in Philadelphia there were 37 deaths registered as due directly to syphilis. If we add the many deaths due to apoplexy directly dependent upon syphilitic arteries, or to other more obscure syphilitic conditions, the total would in all likelihood be an appalling one. It is sufficient to say that there is a decided mortality as the direct result of the disease and its complications that cannot be overlooked. The secondary mortality has recently been brought home in a most impressive

way, by Fournier, a French physician, already quoted, who has collected 18 cases of suicide directly or indirectly dependent upon the knowledge of the patient that he had syphilis.

Let us now gather together the lines of our talk. I have told you many of the consequences of gonorrheal disease. I have purposely said much less of syphilis. Other venereal infections I have entirely passed by. May I now fairly ask for your decision in regard to certain questions which I put to you earlier in the day? Is prostitution worth while? Is it safe? Do you dare to run the risk? Have I said enough to sufficiently warn without rendering you callous through overtalking? If so, I shall welcome the day when your Provost asked me to work among you as student's physician. There are those who make light of the social crime; and you now know why I shudder when I hear them trifle about a subject the gravity of which they know nothing. I have recently read a book by one of the prominent literary women of the day, as full of vile insinuation, and as wicked in its flagrant discussion of man's and woman's infidelity as if she had never heard of a wrecked home or life. The story itself was of a social crime, and was read with avidity by the unthinking public. Perhaps you have all read it.

This very summer there appeared a book, which I found on my library table, loaned by a "friend" to my wife. Its central figures were separated by the crime of the age, and, though lovers indeed, could not marry. There were three other marriages prominently introduced into the story, and two of these were blighted by infidelity of one or the other party. I read this book because the author—this time a man—had written other books of surpassing beauty and brilliancy of thought and theme. If such books influence others as they do me their authors must shoulder the responsibility for many a mental and moral downward plunge, and only after an effort a struggle upward. God forgive anyone, I say, who dares urge a man, and above all, a young unmarried man, to trifle with the purity of sexual relations as these writers have presumed to do.

And now one last word to a body of men that will one day take part in the destiny of this country. I have carefully avoided telling you that you owe the sterling purity of mind, soul, and body, to your God and Maker. I trust that someone else may do this in the near future and in this same old Chapel—whose benches already hold the sons of fathers who have gone before. I would not have you forget the fact that God has made for your use a body that is more wonderful and delicate in its mechanism than any invention of human genius, and that in your power of raising up children after you who may do Him honor He has given you control of a mystery that no scientist has been permitted to unfold. Use this gift nobly and well; and in order to do this thing, guard your purity of thought and action as jealously as you would on the day that you bind yourself, for life and death, to the wife

whom God gives you in the place of your mother. You owe to her and to your children a perfect moral and physical legacy.

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# CASE OF MASTOIDITIS; SINUS THROMBOSIS; PYEMIA; TWO OPERATIONS; RECOVERY.\*

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RECOVERY in a case of marked pyemia from any cause is certainly well worth reporting. It is this consideration, as well as many other interesting features, that has led me to report the following one.

The patient, Jennie Gallagher, a stout Irish girl of twenty-five years, came to the clinic of

the New Amsterdam Eye and Ear Hospital on March 7, 1903, with the following history: Five weeks ago her sister had died of puerperal septicemia and she was in constant attendance upon her until she died. Two weeks ago she was taken ill with the grip and three days thereafter developed some earache on the left side. The same night there was rupture of the membrana tympani and a free discharge took place. Upon admission to the hospital there was a profuse discharge and a perforation in the anterior inferior quadrant of the membrana tympani, marked pain and tenderness with distinct redness and swelling. The swelling was confined to the mastoid region, did not extend upward and backward toward the site of exit of the mastoid vein, nor to the upper portion of the cervical triangle. The discharge showed abundant evidence of the presence of stercptococci. The appearance of the patient was that of profound infection; temperature 101.34° F.; pulse 120; respirations 30. Immediate operation was advised, at once consented to and done the same afternoon with the assistance of Drs. Claiborne, Barstow and Cook, and in the presence of many others, the patient being under ether.

The usual Schwartz's operation was done. The whole of the outer table was found to be softened, necrotic, and the cells filled with dark blood and granulations. The entire cortex was removed to the tip. Upon making an attempt to open the antrum with the rongeur, the sinus, the position of which was abnormally far forward and its wall extremely thin from caries, was accidentally opened, giving rise to a profuse hemorrhage. A tampon was quickly inserted and the hemorrhage promptly arrested. A posterior flap was now made to give better access to the sinus, when a small discolored point was seen upon the sigmoid roof. This necrotic opening was gradually enlarged by means of the curette and the rongeur, exposing the descending portion of the sinus for nearly its entire length. The plug was then removed from the sinus and a new one inserted. The antrum and mastoid were packed with iodoform gauze. The upper parts of the flap were brought together with silk and catgut sutures and a bandage was applied. The patient bore the operation well.

On the following day the temperature dropped to normal, the pain had ceased, and the entire condition was satisfactory. On March 10 the dressings were removed. There was no suppuration, the wound looked aseptic; the plug was removed from the sinus, no hemorrhage took place; temperature 100°F.; pulse 86; respirations 28.

The wound was dressed again on March 12. The temperature had risen to 100.4° F. On removing the gauze it was found that the wound was sloughy, the periosteum was detached from the bone, and there was a profuse, offensive discharge from the wound. The exposed sinus was cleansed and the gauze reinserted.

On the two following days the wound had about the same appearance, but distinct redness

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and tenderness in the course of the jugular and an acute tonsillitis had developed. The patient complained very much of pain from this and of aching all over. On March 15 a very painful arthritis of the middle finger of the right hand had developed. The wound was dressed and there were suppuration and a gangrenous appearance of the posterior flap; temperature 103° F.

On March 16 the temperature was the same and the pulse was 120. On the night of March 16 she had a severe chill, with a temperature of 103.6° F.; pulse 130; respirations 36. Ophthalmoscopic examination revealed choked discs in both eyes. The diagnosis of septic thrombosis was made and another operation was proposed and performed on the afternoon of March 17 at four o'clock.

The original wound was opened up and another posterior flap higher up was made. All the remaining bone covering the sinus was removed by the rongeur, first in the direction of the torcular. The covering of the sinus was then slit with a pair of straight scissors in its long axis and was found to be filled with a firm fibrinous clot, which was removed with the sharp spoon and the blood current re-established in this direction, this part of the sinus being then plugged with iodoform gauze. The exploration was then continued in the descending portion of the sinus toward the jugular bulb, which was also found to be filled with a purulent, disorganized clot. This was removed and, as no blood current from the proximal end could be re-established and the curette carried into the jugular still continued to remove clots and pus, ligation of the jugular seemed to be imperatively demanded, but the patient's condition was such as to make us fear that she could not survive any further operative interference. The pulse was rapid (140 or more) and very feeble; the respirations were very frequent. It was therefore determined to make another effort to get the blood to flow through the jugular, which was finally accomplished by still further curetting of the jugular vein and by more or less forcible manipulations on the jugular vein and neck, by which means quite a quantity of blood streaked with pus escaped and then a free and copious hemorrhage took place. This method was resorted to with the full knowledge that it has been strongly condemned by excellent authority and because of my unwillingness to leave the obstruction and the assurances that the patient, who was almost moribund, could not survive any longer under the operation. The operation was now hastily terminated. No sutures were employed in the flap. The exposed dura was covered with iodoform gauze, both ends of the sinus were plugged with the same, and a bandage was applied. The operation was completed at about 6:30 P.M. The pulse was so rapid and feeble that it could hardly be felt at the wrist. Hypodermics of whisky, ether and strychnine were given and a large high enema of normal salt solution. Hot-water bottles were applied to the surface of the body and friction

made. Under this heroic treatment, after a number of injections,  $\frac{1}{4}$  of a grain of strychnine in all having been given, she was gradually resuscitated, but the pulse was still very frequent, about 140, and hardly perceptible. The temperature by rectum was 103° F. and by the following morning it was 102.2° F., with profuse perspiration. The next day the temperature ranged from 100.6° to 102° F.; pulse 90 to 102; respirations 38 to 42.

The patient was given whisky and strychnine by hypodermic injection until evening when she began to take whisky by mouth. She had several loose stools and slept but little. There was no disturbance of the sensorium. She complained of pain in both arm and hip and had some nausea but did not vomit.

On March 19 the wound was dressed. There was not much suppuration. Both plugs were removed; no hemorrhage followed. Temperature, pulse and respirations continued about the same. There was some stiffness and tenderness in the upper part of the cervical triangle, but no swelling and very little pain on pressure. She complained of pain in the right ankle which on inspection was found to be red and swollen. Hot whisky and liquid peptonoids were given.

On March 20 the temperature was still higher; pulse and respirations showed about the same variations. The patient took nourishment well. The ankle was still more painful, red and swollen. There was profuse perspiration. The patient slept a good deal and seemed stupid. There was involuntary passage of urine; the pulse was rapid but stronger. The wound discharged profusely.

On March 22 the patient complained of pain in the right shoulder which was tender to the touch. The temperature ranged about the same, with profuse perspiration. The ankle was still more swollen; a bichloride dressing was applied. On the next day she had a slight sensation of chilliness but no distinct chill, perspiring very profusely.

On March 24 the temperature rose very high, reaching 104.6° F.; pulse 131, respirations 52, and she complained of severe pain in the right side and back. On March 27 a careful examination of the lungs, made by Drs. Barstow and Bickerston, revealed the physical evidences of pneumonia over the right lung.

March 28, highest temperature 103.6° F. at 6 P.M.; highest pulse, 128; highest respiration, 148. Pain in the back very severe. Perspiring very freely.

March 29, highest temperature, 100.8° F. at 11 P.M.; pulse 120; respirations 48. No cough or expectoration.

April 1: Wound is gradually healing. Sinus, antrum and bulb gradually filling in. Dressed with balsam of Peru.

April 2, highest temperature, 103.6° F.; pulse 129; respiration 40. Restless, a little incoherent; perspiring freely; involuntary urination. Abscess in upper anterior part of arm opened. In dressing the wound, on removal of the gauze

from the bulb, a smart hemorrhage occurred which was only controlled by tight packing.

April 6, a very tender, indurated place over the left buttock; probable abscess forming. Abscess on the arm continues to discharge freely.

From this time on abscesses formed in the buttock, two more on the arm below the first; both were opened, as was also the one on the nates. The wound had gradually closed in the sinus and that in the antrum had entirely healed. There is a good deal of bare bone over the posterior part of the mastoid and the squamous portion of the temporal bone. The finger has healed with firm ankylosis of the joint, but the swelling of the ankle has entirely disappeared without any impairment of the joint. For the last two weeks the pulse and temperature have been very nearly normal, the highest being 99 or 100° F. in the twenty-four hours.

The patient is still bedridden, very weak and unable to raise her head from the pillow. The wound at both ends of the sinus is closed. There is still some uncovered bone in the posterior part of the mastoid and squamous portion of the temporal bone. The patient may be fairly said to be convalescent, but I reserve a full account of the case, with such remarks as I may wish to add for another time when the case has reached a final conclusion.

Since writing the above the condition of the patient has been one of very slow and tedious recovery, with a very slight rise of temperature in the afternoons, frequent sweatings, gradual diminution of the quantity of pus discharged from the abscesses until they finally healed, great exhaustion, irritability, and indisposition to help herself, not even lifting her head from the pillow until after April 26, when the temperature continued about normal throughout the twenty-four hours, and she gradually began to recover some degree of strength and sit up in bed a little while.

On May 29 the exposed bone was found to be loose and a large sequestrum was removed, leaving perfectly healthy granulations underneath. The sequestrum consisted of a portion of the mastoid and squamous portion of the temporal bone, the upper and posterior border 3 cm. long, irregularly serrated for articulation with the parietal bone, the inferior border 3 cm. long, irregular from marks of the rongeur, the anterior border irregular and notched, 1½ cm. long, the posterior border 8 mm. long and slightly irregular, the whole varying in thickness from ½ to 2 mm.; the inner surface irregularly concave and the external surface convex.

After removal of the sequestrum the healing progressed much more rapidly. On June 11 the patient was discharged, still in a very weak and emaciated condition, having been in the hospital for a little more than three months. There was still a small area of wound unhealed, but the sinus and antrum wounds had entirely healed. The right middle finger was flexed upon the hand and the metacarpal joint ankylosed. The temperature was normal, appetite good. There was

gradual daily return of strength and only an obstinate constipation, which had existed all through her sickness to contend with.

On June 27 I last saw the patient at her home, having been called to see her because she had suffered for the past two nights with headache and flashes of light before the left eye and a piece of bare bone in the lower part of the wound had been observed. I found that the appearance and general condition of the patient had very greatly improved. She had gained both in strength and weight and walked about all over the house without fatigue. She said, however, that for the last two or three nights she had been kept awake with headache which extended from the wound to the temple and occiput and that there were flashes of light and obscuration of vision. The wound had healed except for a narrow groove of granulations immediately behind the auricle. In the lower part it was covered by thin, newly formed skin; a whitish point presented itself. Upon taking hold of this with a pair of forceps, a sequestrum shaped somewhat like the letter U was easily removed, the longest branch being about 7 or 8 mm. long. Two minute spiculæ of detached bone were also removed from the midst of the granulations. The pulse and temperature were normal. There was still obstinate constipation which was only relieved by daily doses of a saline cathartic.

An examination of the eye with the ophthalmoscope showed an almost complete restoration of the optic discs to their normal appearance. There was only slight haziness of the disc margin and rather small arteries. She could readily count fingers across both communicating apartments, a distance of about twenty feet, and read easily the finest newspaper print. In the absence of any rise of temperature or aggravation of the condition of the fundus oculi, I did not consider these symptoms of any great moment and the patient may fairly be said to be convalescent.

*Remarks.*—This is the second case of pyemia which has occurred in my practice following mastoiditis, both of which recovered. The other one, which has never been published, was observed in April, 1892, in a young man of twenty-one years, suffering from otitis media purulenta after scarlet fever. There were swelling and tenderness of the mastoid; infection had occurred when I saw him, with high temperature and chill. A mastoid operation was made and severe pyemia ensued, involving many joints. There was septic pneumonia and choked discs and the characteristic temperature with alternate sweatings, and yet, after several months, the patient recovered. Whether or not there was thrombosis of the sinus is not stated in my record of the case.

Dr. J. B. Emerson reports "A Case of Pyemia Following Acute Suppurative Otitis: Recovery" (*Transactions of the American Otological Society*, 1892, p. 221), in which no operation on the mastoid or sinus was performed. There was septic pneumonia. The treatment extended over a period of four months. A number of abscesses

formed which were opened, no drugs being used except for the pain. The cause of the pyemia is not given, but, as in my own case, was probably due to sinus thrombosis of which much less was known at that time.

It is worth while recalling the fact that my patient, while suffering from the ear disease took care of a sister who died of puerperal septicemia, and to raise the question whether this exposure had anything to do with the severity of her attack. She was unquestionably septic when first seen and the examination of the pus showed streptococcus infection. Whether the pus absorption antedated the thrombosis is another point of great interest; that it did not exist at the first examination seems evident enough, although there was a necrosis of the sinus walls, in removing which the sinus was exposed and opened, but the fact that there was a very large hemorrhage at that time showed there was no clot. The symptoms of infection after the first operation which showed infection were tonsillitis, arthritis of the finger joint, chill and choked discs. It is most probable that the sequence of events was as follows: The sinus was infected at the time of the first operation. For the first three days thereafter improvement took place; then the sinus clot formed, with the subsequent appearance of the symptoms so characteristic of sinus thrombosis.

Dr. Frederick Whiting, in "A Contribution to the Symptomatology and Treatment of Pyemic Sinus Thrombosis, Based Upon Three Successfully Operated Cases" (Archives of Otology, Vol. 28, No. 1, 1898), says: "In the event of failure to re-establish the circulation from below the jugular bulb, whether you have removed a purulent disintegrated clot or not, it is your imperative duty to your patient to tie the internal jugular forthwith, as you otherwise leave wide open the main avenue to almost certain pulmonary metastases." And again, "Just at this point the writer desires to enter a vigorous protest against a procedure which has been occasionally witnessed upon the operating-table, and himself participated in, when an attempt is made to force the return circulation from below upward through the obstructed bulb by forcible manual pressure upon the muscles of the neck. I believe that all attempts at re-establishing the circulation by making pressure from below upward upon the muscles of the neck, in the hope of dislodging the clot, cannot be too severely condemned. It is a procedure in my opinion eminently calculated to favor the dissemination of obstructing infective material either directly through the jugular or collaterally through the tributary veins." I have quoted from the author verbatim, because this method, as I said in reporting my case, is the very one I resorted to, notwithstanding it had been strongly condemned by so excellent authority, and I venture to say that in the case before me it was fully justified and indeed the only thing to do. It was obvious to all who were present that the patient could not survive any further

protracted operative interference, and to have left the obstructive clot in the vein would have greatly increased the hazard of the patient's recovery, while the maneuver was successful in re-establishing the return current through the jugular, and, although septic pneumonia did take place, the patient recovered nevertheless, and I contend that she was placed in a better condition for recovery by the fact that the return circulation was established. Without, therefore, saying that the procedure is always to be recommended, I am prepared to defend its adoption under similar conditions and to affirm that every rule may find exceptions and that no arbitrary one is applicable in all cases.

Another point of great interest to me was the somewhat difficult matter of determining whether the first symptoms of pus absorption were really due to sinus thrombosis. The tonsillitis was the very first symptom to cause pain and rise of temperature; then came the involvement of the finger-joint, which was so slight and the swelling, redness and pain so closely resembled gout or rheumatism and the co-existence of the tonsillitis made it more difficult to differentiate between this and arthritis due to pyemia. This, however, was made easier when the temperature rose and the other symptoms, especially the choked discs, made their appearance. Septic pneumonia was the gravest symptom presented by the patient. Neither of the joint involvements went on to the formation of pus, and, although the peripheral abscesses were exhausting to the patient, they were nevertheless accessible to surgical treatment and reach. I may mention that besides being freely opened they were kept drained by gauze and thoroughly cleansed by antiseptic injections.

While speaking of local treatment, I wish to call attention to the use of antiphlogistin, which was used as a dressing for the pneumonia, swollen joints, and indurations preceding the local metastases. In all of these it was most beneficial in allaying pain and especially so in the pain in the side caused by the pneumonia, the patient herself speaking loudly in praise of the remedy. Another method for the relief of the pain in the swollen ankle-joint of which I wish to speak is the suspension of the foot and leg, so as to take the weight off the joint and heel. This was done for several hours daily during the height of the joint involvement.

The neuroretinitis at the last examination had subsided and the patient saw well, although no accurate examination of the acuteness of the vision was made. It may, therefore, go on record as one of recovery after intra-ocular involvement, in which cases, according to Kipp, the percentage of recoveries is about 50 per cent.

In conclusion it must be instructive to recall to mind the recovery of such cases whenever they occur for the encouragement of those who may feel that such conditions as were present in this case, both before and after the operations, were most discouraging, and the prognosis apparently hopeless.

**THE SURGICAL TREATMENT OF ACQUIRED INCONTINENCE OF URINE IN WOMEN.\***

BY CHARLES GREENE CUMSTON, M.D.,  
OF BOSTON, MASS.

THERE is nothing perhaps more disagreeable nor heartrending than a case of incontinence of urine in women and the surgeon will never have a more grateful patient than the one he cures of this affliction. Every practitioner comes in contact sooner or later with these unhappy patients seeking relief of their infirmity, and it is on account of the importance of the subject, rather than the relative infrequency of these cases, that I desire to call your attention to the subject of their treatment.

This paper will only discuss the surgical treatment of what may be termed acquired incontinence of urine, and will deal in no way with the so-called infantile variety of the affection. Incontinence may follow traumatism of the neck of the bladder or urethra; we often meet elderly females, especially those who have given birth to several children, afflicted with incontinence of urine. In the latter case a traumatism may be incriminated as the etiological factor, but it is less evident, because the affection appears to become spontaneously established little by little. We will first consider incontinence of urine having a traumatic urethral origin, then spontaneous incontinence and, lastly, a third variety which appears to have a close relationship with uterine displacements or the presence of vaginal cicatrices.

Considering first incontinence having a traumatic origin involving the urethra, it may be said that the injury may have acted on the internal aspect of the urethra, a condition which is particularly met with in various cases of dilatation of the canal. This dilatation of the urethra may be a pathological one, produced by the passage of a calculus or a neoplasm.

The female urethra presents very little resistance to dilatation, especially when this takes place progressively from within outward, and it is readily conceived how a foreign body arising within the bladder may enter into the urethral canal under the influence of pressure of the bladder walls. If by chance this foreign body is of large size, it takes some little time to be expelled and if its surface is rough it naturally produces a traumatism of the inner surface of the urethra which may result in quite serious lesions. A tumor of the bladder provided with a long pedicle may enter into the urethra and if it requires some little time to dilate the canal it may produce an incontinence which will remain after the neoplasm has been removed. In the same way very large calculi may enter the urethra and there remain for quite a long period before being expelled. Under these conditions,

the walls of the urethra will become injured at different points and according to the seat of the lesion the resulting incontinence may or may not persist. Should the calculus become arrested below the sphincter of the bladder it may either perforate the urethrovaginal septum or it may dilate the urethral walls at their lower aspect. If, on the other hand, the calculus should stop at the level of the vesical sphincter it will produce serious lesions which will persist for a long time and be the cause of a total incontinence, especially when the surface of the foreign body is rough or irregular.

Surgical dilatation of the urethra must also be considered in relation to pathological dilatation. It is often undertaken for the removal of foreign bodies from the bladder or for the purpose of diagnosis in genito-urinary or gynecological affections and this practice was very much in vogue for a number of years, but at the present time it is far less often resorted to on account of incontinence of urine which often follows it. Many cases of incontinence following surgical dilatation of the urethra could be mentioned but the reports given us by Estrabaud, Desnos, Emmet and others, are quite sufficient to show that it not infrequently results from this cause.

It is quite difficult to say what the exact lesions are which produce incontinence after dilatation of the urethra. Unquestionably, if there should be a more or less complete destruction of a part of the urethra, if necrobiosis should have taken place, it may be admitted that a portion of the muscular structures of the canal have been injured. But when no laceration can be found the surgeon can acquire little idea as to the nature of the productive cause. I would point out, however, that Emmet had the opportunity of performing a necropsy in a case of incontinence occurring after rapid dilatation of the urethra in which he found the muscular tunic of the canal forming a hernia through the lacerated mucosa. In another case, he found *de visu* the presence of a cicatrix involving several of the folds which border on the neck of the bladder. In both these cases, it is evident that lesions of the sphincter were present and it might be admitted that when lesions are less marked than in these two cases a submucous laceration of the sphincter of the urethra may have taken place, resulting in a cicatricial sclerosis.

A traumatism may act on the vaginal wall of the urethra and we consequently must consider incontinence following labor and incontinence resulting from the removal of vesical neoplasms or calculi by the urethra.

Incontinence following labor may arise under several conditions. In the first place, it is easy to conceive how the urethra or the neck of the bladder may be more or less violently injured by the forceps or manual operations during a difficult labor. It is needless for me to consider this aspect of the case and I will immediately pass to the study of the mechanism of incontinence of urine following normal

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labors. At the time of labor, the bladder may be empty and this is usually the case when the act takes place rapidly because the head of the child presses the walls of the bladder against the pubis. It is more especially the lower half of the bladder which is pressed upon by the fetal head and naturally it undergoes more or less pressure from this cause; the muscular layer of the bladder will afterward contract with less ease from which various symptoms arise according to the point of the viscus which has received the contusion. Retention of urine will result if the wall of the bladder itself is the seat of the contusion while an incontinence, usually only temporary, will take place if the pressure has been more marked in the region of the neck of the bladder. When labor has been protracted, when the head of the child has remained engaged for some time in the true pelvis, the bladder becomes filled with urine, rising above the pubis and then it is no longer the bladder that is compressed but the urethra and this pressure on the canal is all the more marked the higher it is drawn up by the ascension of the bladder. In all these cases, however, it is quite difficult to comprehend clearly the disorders produced at the vesical neck or the urethral walls.

In one case reported by Milne-Murray, this authority believes that pressure may produce a necrobiosis which will lead to the destruction of a certain amount of the muscular structures of the sphincter. Other authorities uphold that the walls of the urethra simply lose their elasticity and power of contraction and they deny the existence of laceration of the muscular structures. For convenience, however, it may be said that the lesions produced in labor may be classified under two heads, namely, those in which contusion has taken place resulting in a slight paralysis which gives rise to a temporary incontinence, and secondly, deep interstitial ruptures producing a permanent incontinence. I would only mention in passing, that numerous cases of incontinence of urine have been reported following the operation of symphyseotomy, some of which have been only temporary while others have been permanent.

As to incontinence of urine following vesical operations performed after dilatation of the urethra, it may be said that on account of the relative frequency of this complication following this *modus operandi*, the urethral route is now less frequently resorted to than formerly.

The mechanism is easily understood. An incision of the sphincter is necessary and although an immediate suture may oftentimes result in restoring the normal action of the muscle, this is not always the case and frequently after the wound is closed a cicatricial transformation arises which greatly diminishes, or even prevents, the proper functions of the cut muscle. The practical conclusion is that if the surgeon is desirous of removing a neoplasm or a vesical calculus by a vesicovaginal incision, he should take particular pains to carry the incision at a point

low enough to avoid involving the sphincter. But I would add that such brilliant results are now obtained by the suprapubic operation that no man well versed in general surgical technic would probably resort to this tinkering at the present time.

Some women progressively develop an incontinence of urine when no former history of traumatism of a surgical or obstetrical nature can be elicited. It is especially in elderly women that this unfortunate affliction arises, occasionally at about the time of menopause. The urine will escape in large amount upon the slightest provocation. However, a total incontinence is rarely present and in these cases we are usually dealing with a weakened sphincter which has lost its resistance to such a point that it cannot overcome the vesical pressure. These cases are not of uncommon occurrence and are extremely annoying.

Whether or not the explanation may be found in a loss of tonicity of the sphincter appearing at a time when a general relaxation of the perineal muscles takes place or whether there is simply a decrease or an absence of the voluntary muscle fibers of the sphincter, which sometimes are replaced by a hypertrophy of the involuntary muscle fibers, is as yet an unsettled question, because, so far as I am aware, no histological examination relative to this point has as yet been undertaken.

In certain cases of uterine displacements, especially in prolapsus uteri, difficulties in micturition arise and I have frequently noted that incontinence of urine is a very early functional symptom of this condition. Without any question this incontinence is related to a former labor in cases where the prolapsus results from former obstetrical mishaps. In these cases those lesions already described might naturally be invoked as the cause of incontinence in the cases that I am just now referring to, but it should be pointed out that incontinence is quite as frequently met with in instances of prolapsus which slowly develop, accompanied by cystocele and rectocele, added to which there is a general weakness of all the muscles forming the pelvic floor.

In these cases a relaxation of the neck of the bladder and urethral structures must be incriminated, as well as the traction exercised on the urethra by the prolapsed anterior vaginal wall. This same action is also met with in women who present an ascension of the cervix uteri when the uterus is the seat of a fibroid tumor and in these cases we occasionally find the urethra pulled upward while the meatus is hidden deeply under the pubis; the latter is gaping and under these conditions it is not at all surprising to find that the patient suffers from incontinence.

The importance of a congenital development of fibrous tissue uniting the bladder and uterus very intimately, with marked anteversion of the uterus, setting up persistent incontinence, must never be lost sight of. The mechanism is practically the same as in the case of incontinence from upward traction of a fibroid uterus, but in the former

the subjects of the affliction are usually young, unmarried girls or women, who seek relief for this terrible infirmity and the remarkable results which may be obtained by the operation which I shall describe later on, will always be a blessing to these unfortunates. In other cases incontinence in young women and girls may be the result of the presence of fibrous bands which bind the neck of the bladder or the urethra to the vagina.

Under this same heading we should also include cases of incontinence of urine following the operation for the closure of vesicovaginal fistula, because, although in some cases it may be believed that the fibers of the vesicourethral sphincter have disappeared, in others it is distinctly proven that the cicatrix resulting from the obliteration of the fistula, drags on the urethra, holding it gaping, thus producing an incontinence in the same manner as other lesions already mentioned. One should also recollect that, after the radical operation for an old vesicovaginal fistula, there are other hindrances to the normal retention of urine within the bladder. The latter organ has lost its extensibility, is irritable and intolerant and in order to resist the desire to void urine the sphincter should be more powerful than under normal conditions, but it is exactly the contrary which takes place and from which results incontinence. This is only half the truth, however, because it is well known that after the closure of a suprapubic fistula the urethra preserves all its functions, which would go to show that, after the cure of a vesicovaginal fistula, the incontinence is largely due to the traction exerted on the urethra.

Considering now the surgical treatment for the relief of incontinence of urine, it will simplify matters if we classify the cases which resemble each other anatomically, disregarding completely the cause which has produced the lesion. In some cases the urethral canal is present in its entire length and after a superficial examination it would be quite impossible to say why there was incontinence, but in other cases there is a more or less complete destruction of the urethrovaginal septum which may even involve the neck of the bladder. The treatment will consequently vary according to whether the urethral canal is present or not and we will study first the manner of treatment when an abnormal traction on the urethra from a neighboring part exists; secondly, when the urethral canal exists, but with a more or less complete destruction of the sphincters; thirdly, when there is destruction of the canal with an intact vesical sphincter; and lastly, when there is destruction of the canal with loss of the sphincters.

In cases where an abnormal traction on the urethra is present the treatment will vary because this traction may be exercised by a uterus or a prolapsed vagina, or, on the other hand, it may be due to a congenital displacement of the uterus or a cicatrix situated on the anterior vaginal wall. It is at once evident to all that, in cases of prolapsed uteri, an appropriate treatment should be in the first place directed toward the latter condition

without taking into consideration the bladder symptoms. It is not my intention to enter into a discussion of the cure of prolapsus of the female genital organs but I would say that when a properly conducted radical cure of this condition has remained without effect on the incontinence of urine, it is evident that there still exist lesions of the urethra or neck of the bladder which, however, do not enter into the class that I am now considering and to which I will revert further on.

If incontinence of urine is present along with a congenital displacement of the uterus, in anti-flexion, for example, we are then dealing with a traction exercised upward and backward on the urethral orifice by the cervix. There will be found abnormal adhesions existing between the bladder and uterus and the rational treatment would naturally be to free the organs of these adhesions. This can be successfully accomplished by making a transverse incision over the anterior aspect of the cervix and then peeling the bladder off of the organ exactly as is done in vaginal hysterectomy. After the bladder has been thoroughly freed from the anterior aspect of the cervix, the wound is simply packed with gauze and allowed to granulate, so that the abnormal relationship between the organs cannot be re-established. This operation has given me two of the most beautiful surgical successes that it has been my lot to meet with. In both cases the patients were young unmarried girls who had suffered from incontinence of urine for a number of years. In each case every conceivable treatment had been tried without any relief and the cure was immediately obtained by the operation here described, showing that this etiological factor must never be overlooked.

When an incontinence of urine is observed after the operation for vesicovaginal fistula, an endeavor should be made to find the true cause of the former. By thorough cystoscopic examination of the cavity of the bladder, by ascertaining the capacity of the organ by passive distention, we can readily conclude whether or not we have a pseudo-incontinence due to a cystitis. By the use of the olive bougie the resistance of the vesical sphincter can be ascertained. Should these examinations remain negative, the surgeon will probably be right in concluding that bands of cicatricial tissue are present which drag upon the urethra, in which case the proper treatment would naturally be the prudent division of these bands and, if necessary, the separation of the bladder from the uterus, employing the same technic already recommended will probably be of great value.

In all cases, when present, fibrous or cicatricial bands starting from the urethra and extending in various directions, by the traction they produce on the canal, will cause incontinence, the radical and complete cure of which may be obtained by careful division of these bands as has been done with brilliant results by my friend, Dr. Gilliam, of Columbus, Ohio.

When the urethral canal persists with a more

or less complete destruction of the sphincters, the first thing to do is to examine the condition of the latter as well as their resisting force, and in order to ascertain this point the use of an olive bougie must be resorted to. If in passing the instrument, no resistance is felt, one may conclude that there is a considerable loss of muscle tonicity. In order to bring it back, electricity applied locally, combined with massage will sometimes restore the functions of the sphincter, if persisted in for a sufficiently long period. When, however, all hope of restoring the functions of the sphincter is lost, recourse to operative procedures is indicated. These may either act directly on the vaginal wall and on the urethra, or the operation may simply be applied to the latter alone.

In the first class of operations, all are similar to anterior colporrhaphy. For example, Engstroem removes a triangular flap of mucous membrane, its apex corresponding to the neck of the bladder while other operators have thought it better to remove a corresponding part of the urethral wall along with a bit of the vagina. Schultze excises an elliptical flap three centimeters long and one centimeter broad at its widest point while Winckel forms a wedge-shaped flap whose narrowest part corresponds to the mucosa of the urethra. Frank removes two flaps, the first of which is an anteroposterior cuneiform one, comprising the entire vesicovaginal septum, while the second is made transversely at the level of the posterior urethral orifice, that should only include the vaginal mucosa.

Among the second class of procedures may be mentioned the transversal and longitudinal folding of the urethral mucosa, torsion of the urethra and traction upon it with elevation of the meatus. Transversal folding has been done by Desnos as follows: a longitudinal vaginal incision is made over the urethra, the canal is then dissected out and a large catgut ligature is passed around it. After having introduced a No. 15 catheter the ligature is tied and a kind of circular valve is thus formed.

Longitudinal folding of the urethral mucosa may be either done on the anterior wall of the canal or on its lower wall. In the first method the urethra is dissected on its upper aspect underneath the pubis and then a longitudinal suture is inserted on its external wall so that a fold is formed which projects into the lumen of the canal, extending up to the meatus. In the second technic, the urethrovaginal septum is incised longitudinally and two lateral flaps are formed and after having brought them together in the median line they are united at their base. The circumference of the urethra is thus decreased and a median inferior urethral crest is formed.

Torsion of the urethra was first employed by Gersuny with the aim of forming a series of obliquely spiral folds, dovetailing each other. The meatus having been circumscribed by a circular incision, the urethra is dissected backward for about two centimeters. A suture is then

placed opposite the upper pole of the canal which is then twisted on itself until an angle of 180° is formed, then the parts are sutured in this position after the introduction of a fine bougie has assured the operator that the lumen of the canal is not completely obstructed.

Instead of decreasing the caliber of the urethra by the formation of projections within its lumen, endeavor has been made to retain the walls in close permanent apposition by bending the urethra under the lower aspect of the pubis.

To accomplish this the urethra must be elongated and the meatus should be united at a point much higher than its normal situation. At the same time it is well to decrease the caliber of the meatus which may be transformed into a transversal opening. This was first done by Pawlick and later on Duret improved the procedure successfully. It is not to be wondered at that in order to obtain a more perfect result torsion and traction have been combined. It is not necessary to describe the technic in this instance since it can easily be guessed at from the description already given of the other two procedures.

To sum up, it may be said that when there is destruction of the sphincter with persistence of the urethral canal, the operation may be simply a colporrhaphy, alone or combined with an elevation of the meatus. I would point out that it is better not to open the urethra because the formation of fistulae is to be feared and should the urethral walls be thin torsion should not be undertaken.

When incontinence of urine appears to be due to a more or less complete destruction of the urethral canal, the rational indication is to repair the urethra and replace the organs in the situation and relationship that they normally occupy. When bits of mucosa or strips of tissue susceptible of being utilized are still present, they should be used in reconstructing the canal. When, on the contrary, and this is the usual case, no bits remain or when these are either too small or too thin, an autoplasmic procedure must be employed for making the new urethral canal. If the loss of substance is situated far forward, the labia minora may be utilized, but if the injury is further back, flaps may be made from the vesicovaginal septum or simply from the vagina. If the entire urethra is destroyed, flaps must be obtained from both the vulva and vagina.

All these various procedures have given good results but in order to be successful a large amount of patience is required by both patient and surgeon. Often the operation has a most successful immediate issue but the ultimate result is far from ideal. Either the sutures have become lax or small secondary fistulae are formed at the points of sutures. In order to obtain a cure very large flaps should be cut, so that the new canal will have very thick walls which, when sutured, will not be pulled upon by the surrounding parts. It is more than useless to try to accomplish everything in a single operation and the patient must submit to several interventions. In

each one the least possible dissection should be made and if the surgeon will make up his mind as to the absolute necessity of small, successive and uncomplicated interventions, a complete restoration of the destroyed urethra will be made, even if the incontinence of urine is not completely controlled.

Local treatment of the bladder and progressive distention of the viscus, prolonged electrization of the sphincter, are necessary in order to bring about a complete cure.

Two procedures of entirely different nature may be resorted to when both the urethral canal and vesical sphincter are destroyed. Starting on the principle that after restoration of the urethra has been accomplished, the absence of the vesical sphincter may keep up the incontinence of urine, certain operators have discarded autoplasmic operations and have simply made an artificial meatus which is easier to control than the original fistula. Naturally, suprapubic cystostomy is at the present time the operation of choice, but after this operation continence is infrequent, so that I can hardly commend this method. It is well known that suprapubic cystostomy performed on prostatics has, in some cases, resulted in absolute continence, but it is safe to say that the contrary is usually the case.

When destruction of the urethra and neck of the bladder co-exists, I believe it should be the duty of the surgeon to direct all his efforts towards restoring the urethra and if a canal sufficiently long be made, if its caliber and the thickness of its walls are sufficient, the incontinence will be much diminished and a considerable improvement will be obtained. If, however, the affliction continues, palliative methods must be resorted to, such as urinals and various forms of pads which compress the canal. All these means are naturally very unsatisfactory but when all surgical methods have been tried, one must be content with any method which may relieve the infirmity.

#### **SOME SUBJECTIVE HINTS OF THE MORPHINE HABIT.**

BY WILLIAM LEE HOWARD, M.D.,  
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WHILE both objective and subjective symptoms are clear and incised enough in the morphine victim to make positive a diagnosis, the few subjective signs in the very early stages of the use of the insidious drug are not always to be detected by the practitioner, and seldom by the user's most intimate friends or relations. The husband, the father or mother may have one loved living in the family circle who is approaching that period when secrecy becomes impossible and cure questionable, yet whose increasing dependence upon morphine is never suspected.

An appearance of slight ill health, irritable and unreasonable conduct at times, intestinal disturbances, or loss of appetite with anemic indications,

will cause the victim's friends to have her consult a physician. Now is the time for all the latter's intuition and mental notes of experience to be active. If the consultant has had his wits sharpened by the manifold subterfuges and masked confidences of neuropaths, he will hesitate before making any diagnosis in these alleged cases of a "general run down of the system." In dealing with the beginner in the use of the drug he must recognize that the neuropath is yet only in the grasp of one of the tentacles of this octopus, and now is the time to tear away forever this sucker of morals whose fascinating embraces breathe wily stratagems and golden promises.

If, after carefully considering the physical symptoms as told by the patient, and especially the details of life and conduct as seen by her intimate friends and family, and by close questioning and examination, you find no rational cause for the general systemic disturbances, you are justified in suspecting the use of morphine, but that suspicion must lie so hidden, that not by sign, look or word could the acute watcher and observer—for such she will be—gain a hint to your thoughts. This attitude is necessary to accomplish your ends and to render all justice to the patient should your suspicions prove erroneous.

The patient should be treated for the distressed feeling she complains of, letting her understand that this treatment must continue for several weeks. This understanding is necessary if you wish to get at the truth.

Laying considerable emphasis upon the importance of seeing her at a certain time, make an appointment the next day for an early hour. If it is in the afternoon that you have had your first consultation—and such will probably be the case—watch carefully the conditions existing in your patient—the restless attitude, the inclination to talk upon subjects foreign to her symptoms, the furtive glances and the eyes generally. Are the latter bright, and do they harmonize with her words and actions? Is she voluble, sanguine, and apt to consider her distress of minor importance, and say she feels "much better to-day"? An appointment for the next day she readily promises to keep to the minute, and if you have well acted your part the patient leaves your office feeling confident that she has "fooled another doctor." On the next day the appointed hour passes, and noon arrives with the patient hurrying into your office with her cheeks flushed, and she at once pours out voluble excuses for her tardiness. The excuses must be accepted with every appearance of belief. Again notice the general attitude of the patient. It may or may not vary in degree from that noticed the day before, but the treatment must be the same.

Now comes in the astuteness of the consultant; he must find out without causing suspicion what her conditions are in the mornings. Does she eat a substantial breakfast? Is her appetite wanting; or is it capricious? Is she irritable and dilatory about making her appearance, drowsy and diffi-

cult to arouse, but when ready to leave for her engagements, voluble and sprightly? All, all these apparently minor facts must be well considered.

The third day she is again late, later than she was in keeping the first engagement, but remarks that she had no idea she was so much behind the appointed time. Now is the time for clever dissembling on the part of the physician. Let him appear at her house the next morning at a reasonable hour, with the excuse that he could not keep the office hour, and, not wishing to have the day pass without seeing her, he called. He will probably be told that she is not down. "Will he wait?" Yes, he will wait, and should he be detained a half hour and then see his patient appear with every evidence of a hasty and careless toilet, moist skin, pale face and vapid, filmy eyes, he may satisfy himself that he is on the right track. He will not be able to keep his patient long, for the small "shot" she has taken is not sufficient to enable her to control a feeling of fear and weakness, and she will in a nervous and irritable manner ask him to excuse her. After this occasion the observer must see her under different circumstances; at night, at a period when she is self-controlled—or rather drug controlled—mentally bright, and on her guard. When this condition is contrasted with those seen in the mornings, the experienced observer cannot fail to recognize the great psychic change. Let him now watch for verbal contradictions, exaggerated statements, and, sometimes, erotic tendencies, for now the evening physiologic rhythm is controlled by the influence of the drug. Make another engagement for an early hour, and when it is not kept you will realize how impossible it is for these cases to ever recognize the value of time or promise.

Objections, naturally, will be made when one advises using such factors as late rising in the morning, drowsy appearances or unfinished toilets, as diagnostic factors. Among our mental workers and devotees to society such conditions are almost universal, therefore what value can be placed upon such conditions? No value at all, taken alone, but taken as gradual changes from former habits, accompanied by decided psychic and moral evolutions, they have decided value.

To place and analyze such changes; to eliminate physiological causes, psychic shock, irritating environment, etc., is no easy task, yet a necessary one in making a diagnosis. Upon the statements of the intimates of the patient much depends, yet one must be always on guard as to the motives of such friends. A history of uncontrolled impulses in childhood is an important matter, as it shows a neurotic basis. If all accounts agree that the morale of the patient is gradually changing, that where she was formerly truthful she is now careless of her statements, that she makes engagements and promises which are not kept, that her sense of relation and duty to others has become dull and her ego exaggerated,

we can come to the conclusion that we are dealing with a user of morphine.

Up to this point we have been given a clue as to the cause of the subjective symptoms complained of by the patient and family. The further facts which the physician will want before hinting his suspicions to the family, are not easily gotten. He will want to know where she purchases her drug, and how she uses it. Taken alone, the appearance of the eyes has no value. So expert have these morphine victims become in the use of atropine that the condition of the pupils tells little. You may ask for the urine and expertly examine it for the crystals, only to find later that you have examined the maid's urine; as once happened in a case of the writer.

I have in the above remarks only lightly touched upon some of the problems entering into the early diagnosis of the morphine habit. It seems almost surplusage to make any remarks concerning the absolute unreliability of statements made by the patient herself. One of the first effects of morphine is to destroy the responsibility of the ego; to submerge the individual's recognition of her place in the world, to make her purblind to the difference between *meum* and *teum*, or to allow her to ever get away from the powerful influence which constantly focuses the mental energies on the self.

#### THE HEMORRHAGIC DISEASES AND THEIR AL- LIES IN THE LIGHT OF MODERN PATHOLOGY.\*

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THE customary inclusion of the hemorrhagic diseases among the blood diseases is most unsatisfactory, for, in so broad a sense, these may be held to include nearly all the infections, intoxications, and errors of metabolism, approximately one-half of the field of internal medicine. Many recent authors, like Litten,<sup>1</sup> group these affections into a class by themselves, on the common basis of the symptom of hemorrhage. We shall see that this classification is far from meeting modern scientific requirements; these diseases do not even agree in the cardinal symptom, as will be presently shown; in other respects some of them differ so widely and profoundly, as to present scarcely any points of contact whatever.

Our study will be best begun with a brief discussion of the nature and causation of spontaneous hemorrhage. Cohnheim<sup>2</sup> and Arnold<sup>3</sup> showed that it is caused by a yielding of the intercellular cement of the vascular wall resulting from impaired nutrition, in many, but not all cases, favored by a local rise of blood pressure, which is regularly due to a thrombosis. The question naturally arises, whether the malnutrition or the thrombosis is the primary factor,

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and here the authorities disagree; Von Kogerer<sup>4</sup> declares that the thrombosis is secondary to the vascular degeneration, whereas Silbermann<sup>5</sup> claims that the impairment of the vessel wall is the result of the thrombosis and the consequent rise in the intravascular tension. As we go on to consider the various hemorrhagic diseases seriatim, we shall find support for both views, neither seeming to obtain universally. Aside from the stated question, however, one fact stands out clearly; degeneration of the vascular endothelium must follow either a deficient food supply or the presence of a poison in the blood, and experience has shown that these two factors always coexist. It will, therefore, be necessary to proceed at once to the consideration of poisons in general and blood poisons in particular.

Poisons, in the popular sense of the word, may be classified along two lines. According to their origin, we distinguish between poisons derived solely from the body tissues, and such as are either directly introduced or are secondary to the introduction of a foreign substance; thus we have endogenic and exogenic intoxications. According to their biochemistry, we observe two very different modes of action on protoplasm, requiring a somewhat extended description.

It is easy enough to understand the effect of an ordinary chemical poison. If corrosive sublimate, for instance, be brought into contact with living cells, it will form a firm combination with their protoplasm, rendering it permanently incapable of performing its physiological functions, in fact, divesting it of the properties regarded as specific to protoplasm. The process of cell destruction continues until all the molecules of the poison have entered into combination, at which point it ceases; but, if the organism as a whole survive, and a fresh quantum of the same poison be introduced, a new series of cells will be affected exactly as those before, the first intoxication having conferred no immunity to subsequent administration of the same noxious agent. Poisons of this class are notable for destroying protoplasm wherever encountered.

A subdivision of the chemical poisons consists of those substances which form only a loose combination with protoplasm, a sort of external attachment, easily broken up or neutralized. These poisons are selective, choosing some animal cells and ignoring others, not permanently destroying the protoplasm, but causing merely irritation or inhibition. In time, in certain cases, the cells may become habituated to a substance of this class, and refuse to be affected by it; but we shall see that this loss of chemical affinity bears no resemblance to an acquired immunity in the true sense, a radically different condition. To the above subdivision belong the alkaloids and their allies, the ptomaines.

The poisons of the second class, called toxins, differ widely from all the preceding. In the first place, they are proteids, therefore not entirely foreign bodies, but akin to the cell foods; like them, they are absorbed by the protoplasm and

give rise to cell metabolism, differing from the true foods only in that they damage the cells. Ehrlich's<sup>6</sup> ingenious and now generally accepted theory of this process is as follows: In the protoplasmic molecule there is a "side chain" of proteidophile atom groups called "receptors"; when a toxin molecule becomes attached to such a receptor, new receptors are segregated from the protoplasm; as toxin absorption proceeds, the new receptors are formed in an increasing ratio, and, when their number becomes excessive, are finally set free, ready to attach themselves to further toxin molecules before these can reach the cell receptors. As soon as the free receptors are sufficiently abundant fully to protect the cells, we obviously have the whole tissue rendered immune to that particular toxin; these free receptors are then the "immune bodies," in popular language the "antitoxin." It is this production of immunity which constitutes the essential difference between the respective actions of ordinary poisons and toxins.

We may now transfer the above phenomena to the blood. As to the chemical blood poisons, we must consider separately a group having a specific affinity for the red blood cells, namely, the hemoglobin poisons. Potassium chlorate is an excellent example of this series; it causes a firm oxidation of the hemoglobin into methemoglobin, but the discoplasm of the erythrocyte as a whole does not become disintegrated until the process has advanced so far as to impair its nutrition; only then is the methemoglobin discharged into the blood plasma. The same effect is produced by the entire nitro-group (the anilin derivatives, nitrites, etc.), and analogous changes follow poisoning with sulfureted hydrogen, cyanogen, carbon monoxid, sulfonal and so on. In all these cases, in the early stages at least, before the cells break down, any spontaneous bleeding must be caused by simple malnutrition of the endothelium, conditions favorable to thrombosis not being present; we have seen that these poisons attack the hemoglobin exclusively, thrombosis requires agglutination of the blood cells, and this can occur only when the discoplasm is attacked as a whole.

Apart from the hemoglobin poisons, the chemical blood poisons present no especially distinctive features. When the blood cells as a whole are attacked, agglutination takes place, we have then thrombosis with its increased local blood pressure, extravasation can readily take place. As to the effects of the alkaloids and ptomaines, as suggested, some, like quinine, seem to affect the blood alone; others, like atropine, attack the blood as well as other tissues; a third group, like morphine, have little or no action on the blood cells.

Finally, it will be best to speak of all the chemical forms of blood cell destruction as "blood dissolution," for I think that the term "hemolysis" should be reserved for the process caused by the toxins. Thus, much of the existing confusion in nomenclature can easily be obviated.

Recent investigation has shown that the action of the toxins on the blood cells is somewhat complicated. Ehrlich and Morgenroth<sup>7</sup> showed that the hemolysis caused by the injection into the blood of a foreign serum depends upon two components. The former, a stable "immune body," unites with the cell receptors of the host, causing agglutination, but no further injury. It is the latter, an unstable substance, the "complementary body," which actually destroys the cells, but would be incapable of so doing, were not the receptors first fixed by the immune body as "intermediary body" or "amboceptor." The amboceptor must be introduced from without, but the complementary body is not necessarily of foreign origin, and may be supplied by the serum of the organism attacked; thus, the essential step in producing hemolysis is the introduction of a toxic amboceptor, the determining factor in the process, though not, as we have seen, the actual "lysin." The relation between hemolysis and immunity thereto is plainly reduced to a matter of the respective affinities of bodies of the receptor type.

A foreign serum from a different species produces "heterolysis," one derived from another member of the same species "isolysis," less intense, as would be expected. "Autolysis" would, at first glance, appear impossible, and at one time its existence was strenuously denied; its occurrence, however, has now been demonstrated beyond question, and we shall presently have occasion to observe its great pathological significance.

Snake venom may be regarded as the type of a blood toxin; Flexner and Noguchi<sup>8</sup> showed that, after reduction to a mere agglutinin by destroying the complementary component with moderate heat (56° C.), its full hemolytic power is restored by adding any normal serum to supply that body afresh. I might mention, in passing, that its action on nerve cells was found to be relatively feeble, contrary to the popular belief, immunity being rapidly acquired in that tissue, while in the blood, on the other hand, the extreme intensity of the venom makes the acquisition of immunity far more difficult, large doses destroying the cells far more rapidly than new receptors can be liberated.\* Among other blood toxins that have been found in the animal and vegetable kingdoms, I mention merely abrin, ricin, and, above all, the bacterial products, such as tetanolysin, staphylo toxin. The action of all these substances has proved so far identical, except in degree, as to give rise to the opinion, also sustained by experiment, that there is but one kind of lysin complement; the newest researches, however, seem to prove that such is not the case (Ehrlich and Marshall<sup>9</sup>).

*The Autogenic Hemorrhagic Diseases.*—In considering the autogenic hemorrhagic diseases,

we may begin by taking up the subject of autolysis at the point where we temporarily dropped it. Within certain limits, in view of the constant destruction of blood cells going on in the circulation, it is probable that a process that must be called autolysis is normal, and becomes pathological only when unduly accelerated. Such acceleration may be caused by the resorption of amboceptors from within the body, the most available source being an internal hemorrhage. As a matter of fact, Grawitz<sup>10</sup> did observe degeneration of the blood cells under such circumstances, but the rapid formation of immune bodies would obviate extensive destruction by autolysis from this cause. In a severe or continuous autolysis it will be necessary to look for some form of internal secretion of amboceptors as the result of a perverted metabolism, or for the retention of amboceptors that should be excreted. Let us assume, that large quantities of such amboceptors, *i.e.*, auto-agglutinins, are being continuously resorbed into the blood; in this event there will be a constant liberation of anti-auto-agglutinins, with a result beyond the mere inhibition of hemolysis. For, if we refer to the familiar process of the coagulation of extravasated blood, and regard the fibrin ferment, as we must, as consisting of a zymophore complement and an auto-agglutinin, the latter mostly derived from breaking down of leucocytes in the course of extravasation; it is plain that, when the blood is already fully charged with anti-auto-agglutinins, the first step in coagulation will be interfered with, and the fibrin-forming complement cannot be activated. The blood will then continue to exude without clotting, giving us the clinical picture called Hemophilia.

Before discussing this new theory of hemophilia, we may briefly look back at the older views. Our ignorance on this subject was so profound, that we could not even say whether we were dealing with a true disease or an error in development; the hereditary and congenital features made the latter view very tempting, though nothing was really explained thereby. W. Koch<sup>11</sup> considered it a bacterial infection, but his view is hardly tenable; his evidence is very imperfect, and I shall show his assumption of identity with scurvy to be entirely erroneous. Resting on certain observations of Virchow,<sup>12</sup> Immermann<sup>13</sup> proposed an explanation, that has gained wide acceptance. He claimed that the essential lesion is a congenitally arrested development of the blood vessels, which are thus incapable of resisting even a moderate increase of the intravascular tension. It will suffice to point out two flaws in this theory. First, an exactly similar maldevelopment of the vessels occurs without any hemorrhagic diathesis; secondly, the failure of the blood to coagulate remains unexplained. I must not fail to emphasize the fact that the characteristic symptom of hemophilia is not spontaneous bleeding, as so often assumed but never yet demonstrated, but defective coagulation, as before stated. Blood analyses have

\*Tetanotoxin is another conspicuous example, in another tissue, of a toxin so intensely destructive as to make even artificial immunization almost impossible. Similarly, immunization to the toxin of diphtheria would often fail without artificial aid, which, in turn, must be administered promptly to be effectual.

shown no want of fibrinogens, i.e., agglutinins; the failure of the extravasated blood to form rouleaux is, of course, due to absence of agglutination. Alex. Schmidt<sup>14</sup> did cause hemophilic blood to clot promptly by adding what he called a "zymoplasma"; in the light of modern research this "zymoplasma" undoubtedly contained foreign amboceptors, against which, naturally, an anti-auto-agglutinin would be powerless. Under the new theory, Schmidt's experiment should furnish the clue to a rational plan of treatment.

The failure to acquire immunity is the corollary to our theory of hemophilia, as the disease itself is a pathological immunization. Two difficulties present themselves for elucidation: first, the source of the original agglutinin; secondly, its constant production throughout life. As to the former question, we are in position to furnish a parallel, presently to be referred to; as to the latter, we cannot so far give a perfect analogy. Though we know of other internal secretions, producing pathological changes, that are both congenital and continuous, such as those causing cretinism and obesity, we cannot instance them without a certain reservation. Arguments based on premises so little understood are apt to involve serious fallacies. With regard to normal secretions of this type, we are not at a loss; the digestive fluids are in every way sufficient instances.

Returning to the first question, we have in obstructive icterus an auto-intoxication that presents a blood condition practically identical with hemophilia except as to permanence. Grünbaum<sup>15</sup> demonstrated the presence of agglutinins in the blood in jaundice, as evidenced by its action in cultures of the typhoid bacillus; such formation of agglutinins we know to require absolutely the presence of a toxin, as before stated; the bile being an internal secretion, the auto-toxinemia in icterus must be regarded as a settled fact. If the biliary obstruction and resorption continue for any space of time, an extensive production of anti-auto-agglutinins is inevitable, the resemblance of the mysterious idiopathic hemophilia to the readily comprehended icterogenic hemophilia is most striking and convincing. If Ehrlich's theory has any merit at all, the causation of hemophilia here outlined is not likely to be effectively controverted.

A few words as to the older theories of the blood changes in icterus, now practically obsolete. Rywosch<sup>16</sup> caused blood dissolution by the injection of large doses of the bile salts into the circulating blood; excessive quantities interfered with coagulation. This picture differs rather widely from that of hemophilia, whether idiopathic or icterogenic, for in the latter variety, as in the former, we have no evidence of any especial blood cell destruction. Moreover, as Quincke<sup>17</sup> points out, Rywosch's doses of the bile salts are larger than can possibly be encountered in the most intense icterus.

Lest I be misunderstood, let me mention, in passing, that cholemia, in which hemolysis or blood dissolution does occur, is by no means a

simple bile poisoning; it may, indeed, be attended with little or no jaundice, and is, in fact, more akin to uremia, a mixed type of auto-intoxication, in which ptomaines probably play the leading rôle. For obvious reasons I have here taken care to exclude the infectious forms of icterus from consideration.

*The Scorbatic Diseases.*—We now proceed to another group, including scurvy and its infantile variation, Barlow's disease.\* In scurvy, in the course of a progressive cachexia,† we find extensive destruction of the blood cells, indicated by marked oligocythemia and oligochromemia; the bleeding is largely spontaneous, there is no very demonstrable failure of the blood to coagulate, a picture quite different from that of hemophilia.

There is, of course, no lack of theories, the weakest being again that of a bacterial infection, whose ablest sponsors (Babes<sup>18</sup>) do not seem to be fully convinced by their own very incomplete evidence, there being none, for instance, showing communicability. Wright's<sup>19</sup> theory of an acidosis has a better foundation, since the chemistry of the scurvy-producing diet points in that direction. The American Collective Investigation of Infantile Scurvy<sup>20</sup> proved that this disease is regularly associated with an unsuitable food supply, and disappears under a correct regimen. Experience had long ago led to the belief that an exclusive diet of certain artificially preserved foods is the primary cause of scurvy; in the above-mentioned investigation, and in the recent discussion on Barlow's disease in the Berlin Medical Society<sup>21</sup> that fact was established beyond a doubt; evidently, under the circumstances, bacterial action cannot come into play, the deleterious change in the food must therefore be a chemical one. Further proof, that the scorbutic diseases are a form of chemical poisoning, is adduced by the very old and correct observation, that a simple change in the dietetic chemistry, namely, the addition of salts of the organic acids, is rapidly curative; it is also interesting to note how closely the symptoms of scurvy resemble those of chronic mercurialism. Incidentally, all observers agree, that anything like original or acquired immunity is conspicuously absent; this fact supplies further corroboration as to the type of intoxication presented.

Of the precise nature of the scurvy-producing poison we can as yet say little. In this case, as in others, the convenient designation of "ptomain" has been brought in to label our ignorance; as no ptomain whatever has yet been demonstrated, this view for the present must remain a mere guess. A possible theory rests on the old opinion of Garrod,<sup>22</sup> that a deficient supply of the organic salts of potassium causes scurvy, a sort of argument *ex juvantibus*; thus the cells would break

\* The practical identity of scurvy and Barlow's disease is now generally admitted (21).

† Cachexia is in effect only the clinical expression of a chronic progressive blood cell disintegration, as seen, for example, in the "pernicious anemia" picture of the blood in carcinoma; analogous changes in the other tissues can hardly be of equal importance to the organism as a whole.

down from a kind of starvation, more accurately, perhaps, from an auto-intoxication by their own faulty metabolism. We are also bound to infer that the important salts in the food undergo the deleterious chemical change either through prolonged heating in contact with the food proteids, or through antiseptics employed in food preservation; both kinds of sterilization having been productive of scurvy. Although Garrod's theory as amplified remains purely empirical, it seems, nevertheless, to be the best we have; it is more than likely that we are dealing with a characteristic auto-intoxication due to an abnormal tissue chemism, a suitable readjustment of which promptly causes a cessation of the morbid process.

Where does scurvy belong in our general system of pathology? Evidently not to the type represented by hemophilia; on the other hand, it presents a considerable resemblance to a well-known non-hemorrhagic disorder. Referring, once more, to the infantile variation bearing the name of Barlow, we note that the discoverer himself regarded this affection as an acute form of rhachitis;<sup>23</sup> some authors still approve of this designation, but Ziegler's investigations<sup>24</sup> show a number of differences between the two, the chief being that in Barlow's disease the bone marrow is most implicated, in rachitis the periosteum. It must be conceded, however, that there are many evidences of relationship. The etiology of both is, after all, similar, namely, an unsuitable regimen; both also are successfully treated along similar lines, the causal indication being met by correcting the diet.\* The more rapid result in scurvy is merely a repetition of a usual difference between acute and chronic diseases. It seems to me that scurvy and rickets unquestionably belong in one class.

*The Exogenic Hemorrhagic Diseases.*—The exogenic hemorrhagic diseases are readily divisible into three sections, on the basis of etiology, as we are here on fairly firm ground. The most rational and convenient division is into: (1) Chemical blood poisoning; (2) non-infectious toxinemia; (3) infectious toxinemia.

*Chemical Blood Poisoning.*—We have seen that there are numerous chemicals capable of causing blood dissolution and spontaneous hemorrhage; as I have already treated the subject somewhat in extenso, I shall discuss it now only in its relation to other groups. Toxic purpura, as I must designate this type, has been in a great measure surrendered to the dermatologists; a little excursion into their domain will furnish some data to aid us in the discussion to follow, provided that we employ them with that reserve, which deductions from poisons to toxins ought always to call for.

We have a characteristic series of blood poisons in our new friends, the antipyretics of the anilin group, of which acetanilid is an excellent repre-

sentative; the liberal administration of these drugs has supplied us with a mass of invaluable toxicological material. Acetanilid, being a nitro-body, acts by converting the hemoglobin into methemoglobin, with the ultimate possibilities before stated. The cutaneous manifestations of poisoning with this substance consist in a great variety of dermatoses, the chief interest for us lying in the thereby demonstrated relationship among these eruptions. Most frequent are the erythemas, morbilliform and scarlatiniform, often becoming purpuric, in a smaller proportion vesicular, *i.e.*, herpetic or pemphigoid; very commonly the rash presents the appearance of an urticaria or the so-called angioneurotic edema, which, by the way, is neither neurotic nor an edema; for it is primarily of hemic, not of nervous origin, and does not pit on pressure; it is not the result of a venous stasis, but an inflammatory exudation.

At the commencement of this essay, I called attention to the difference between cell destruction and the impairment of cellular function by chemical poisons; in the blood these two processes are admirably illustrated by the respective actions of acetanilid and quinine, which produce symptoms clinically almost identical. Binz<sup>25</sup> showed that quinine interferes with the normal oxygenation of the hemoglobin, eventually resulting in the death of the erythrocyte. In the case of acetanilid the oxygenation is replaced by a firm oxidation, with the same ultimate consequence. Thus we see the same effect produced in two entirely different ways by two hemoglobin poisons; the greater gravity of acetanilid poisoning being inevitable from its effects being permanent.

*The Non-infectious Toxinemias.*—At the beginning of this paper I gave an outline of the action of the most typical and powerful of the blood toxins, namely, snake venom, and at this point shall merely add, that the various similar animal secretions, notably the venom in the bites and stings of insects, differ from it chiefly in degree, and that only apparently, if we consider quantitative relations. All these insect toxins produce urticaria, some even purpura; natural immunity is frequent, to acquired immunity all the residents of our mosquito infested swamps will readily testify. There is no occasion here to pursue the subject further.

Among vegetable toxins, we may, with some positiveness, place the noxious principles of nettles and poison ivy (*Rhus radicans* L.). Investigations in this direction are still needed, but the well-known frequent immunity to poison ivy is highly suggestive. In this connection the researches of Dunbar<sup>26</sup> are of the greatest interest and import; the pollen of certain grasses, golden-rod and ragweed are shown to contain toxins, producing in the symptom group of hay fever a characteristic intoxication of the urticaria type.

From the facts presented in the last two chapters, the conclusion is inevitable, that spontaneous hemorrhage, by itself, forms a most unsatisfactory basis for pathological classification. We

\* Personally I have had no startling success with phosphorus in rachitis, and have always observed that the most ardent defenders of this most unpleasant drug have been the most insistent advocates of sound dietetic measures.

have found it impossible to draw a line between this symptom on the one hand, and certain erythemas, urticaria and herpes on the other. The evidence is overwhelming that all these correspond only to different degrees of the processes of blood dissolution and hemolysis, and we shall obtain further corroboration of this point in the chapter on the infectious toxinemias.

Before passing on to that branch of the subject, however, let me give a brief résumé of the theories of urticaria. Unna<sup>27</sup> attributes urticaria to a series of local venous contractions with secondary stasis and "edema," the unaccountable non-edematous character of which he seeks to explain away by calling it an "elastic edema." Now, in addition to this evasion, his theory includes at least two errors. First, there is no passive hyperemia present to cause edema; secondly, the author ignores the admirable provision for collateral circulation in the skin. Heidenhain<sup>28</sup> more correctly considered the exudation to be due to an inflammatory production of lymph, with increased activity of the vascular endothelium, caused by poisons in the blood. In addition, Philippon<sup>29</sup> by injecting atropine and other blood poisons into the circulation, demonstrated that erythema and urticaria are both of hemic origin, differing solely in degree. Of especial interest to us is the observation of Ferré and Lamy, cited by Barthélemy,<sup>30</sup> that a temporary immunity to an urticaria-producing substance may be acquired through its repeated administration. These investigators attributed the phenomenon to exhaustion of the vasomotor nerve ends, but Ehrlich's theory now seems to afford a far better explanation.

*The Infectious Hemorrhagic Diseases.*—All the infectious diseases may be attended with hemorrhagic symptoms, not a very surprising circumstance considering that they are all more or less toxinemias. In typhoid fever and diphtheria hemolytic symptoms are relatively rare, in the exanthemata and the septic diseases they are more frequent, their intensity being usually fairly commensurate with the severity of the infection.

The so-called exanthemata, measles, variola, scarlatina, on the one hand; and the septic diseases, typhus fever, streptococcemia and rheumatism, on the other; have many features in common. Some authorities, indeed, would consider scarlatina, rheumatism, and ordinary sepsis mere variations of one form of infection; so far, however, most of the evidence is against them. The absence of reciprocal immunity and the failure of the anti-streptococcus serum in scarlatina\* are decidedly adverse arguments. All that can be claimed, for the present, is that these affections have a marked resemblance to one another in their general symptomatology.

The infectious character of acute articular rheumatism has been suspected for many years, but only within the last decade has this view

gained general acceptance. The type of fever, the occurrence of epidemics, the metastases, and last, but not least, the success of internal antiseptics, establish this theory quite firmly; all that we now require is the demonstration of a specific germ, and here, unfortunately, confusion still reigns. It must be admitted however, that the discovery of bacteria in the circulating blood is not necessary, they are not to be found there in some forms of unquestionable sepsis; we know that a toxinemia alone will produce all the observed symptoms, the presence of free micro-organisms is not essential. Various observers have found various germs in rheumatism, including those of ordinary sepsis. The increased coagulability of the blood and the marked anemia attendant on this disease have been noted for centuries, and in our time verified by the modern methods; Bussenius<sup>31</sup> demonstrated agglutinins in the blood; thus we have ample evidence of hemolysis.

The old view, that acute articular rheumatism is a specific joint affection, has been abandoned; we are now in position to say that this lesion is only one of the metastases of a systemic infection. Passing by endocarditis and pericarditis, I shall say a few words concerning certain less generally accepted phases of rheumatism. Amygdalitis is quite frequent in the course of rheumatism, and we have every reason to believe that many anginas occurring independent of articular inflammation are, nevertheless, rheumatic; endocarditis has repeatedly been observed to follow amygdalitis uncomplicated with any joint symptoms.

Muscular rheumatism has given the pathologists no end of trouble, at present, however, the opinion of Leube<sup>32</sup> is rapidly prevailing; namely, that acute polymyositis, including many cases of less widely disseminated muscular inflammation, is usually, if not always, truly rheumatic. The following clinical facts support this view. First, we occasionally see the combination of articular and muscular inflammation; secondly, there is the experience of many observers (Cheadle, Still<sup>33</sup>), who, like myself, have seen typical rheumatic endocarditis with chorea, in children who have suffered from appreciable joint pains, but have presented only a moderate muscular soreness and tenderness ("growing pains"); thirdly, we note the ready response of acute muscular rheumatism to the salicylates; lastly, we have the parallel between the nodes of rheumatic myositis and the subcutaneous nodules first described by Hillier<sup>34</sup> in the course of the articular affection.

In the case of chorea, the relation to rheumatism has become more and more generally accepted since the publications by Romberg and Hensch in 1846; the combination of rheumatism, endocarditis and chorea is so familiar that a detailed discussion in this place would be superfluous.

I have reserved the rheumatic lesions that will interest us most for the last; I refer to the dermatoses of rheumatism. In addition to the nodes of Hillier, these include various erythemas, herpes,

\* I am aware that the authorities here disagree, sometimes violently; see the not very edifying discussion (Berl. klin. Woch., 1902 No. 52 et seq.)

urticaria, and the Peliosis rheumatica of Schönlein, a most suggestive array in view of the preceding chapters.

The mere mention of Peliosis rheumatica recalls a maze of controversy only now being straightened out. Peliosis rheumatica is one of a series of disorders forming an old scientific battle ground, yet the matter in dispute seems to admit of easy adjustment. It has been customary to name the following clinical types: purpura or peliosis rheumatica, purpura simplex (without joint symptoms), purpura hemorrhagica (with internal bleeding), erythema multiforme, and erythema nodosum, not to speak of minor variations. This cumbersome scheme may readily be simplified. In the first place, we can rule out purpura simplex, which we have seen to be merely a symptom, attending the most diverse intoxications; purpura hemorrhagica is, of course, tautological, for every purpura is hemorrhagic, we cannot admit that there is anything specific about epistaxis, for example.

As to erythema multiforme and erythema nodosum, most modern writers, such as Kaposi<sup>55</sup> and Osler,<sup>56</sup> consider them forms of a single disease, which they rightly prefer to call erythema exsudativum, and class as a mere eruptive variety of purpura rheumatica. Strangely enough, so high and recent an authority as Jarisch<sup>57</sup> drew a hard and fast line between the two erythemas, and regarded them as different diseases, calling attention to contrasts in their respective morphology, etiology, localization and clinical course. In the matter of morphology, Jarisch's standpoint seems somewhat narrowly dermatological, we have seen that the apportionment of cutaneous symptoms among the various species of intoxications is most misleading. As to etiological differences, he would seem to beg the question, since those he himself gives are of no great moment. Referring to clinical facts, many observers, myself included, have seen both erythemas combined with purpura and joint effusion in the same subject at one time; it requires only a moderate number of such cases to make the position of Jarisch quite untenable.

Many authors, like Litten,<sup>1</sup> have selected the old term morbus maculosus as a suitable designation for the entire group; this name has, in a high degree, the faults incident to nearly all symptomatic appellations, namely, ambiguity and inaccuracy. In view of the fact, that we regard rheumatism to-day as merely a convenient name for a mild type of sepsis of undetermined microbic origin, it seems to me that no better term than purpura rheumatica can be selected to cover the entire series of hemorrhagic diseases of similar origin, which, besides, in so many respects, give evidence of being only unusual forms of true rheumatic metastasis. The above aspect of the case is sustained by the prevailing opinion held at the Third International Dermatological Congress (1896), to wit, that purpura rheumatica and the two erythemas are mere forms of one disease. The matter cannot be considered

absolutely settled until determined by bacteriological research; for the time being, however, as we have the consensus of the great majority, it is certainly justifiable to take the position I have indicated.

Summing up, then, we find that hemophilia, congenital or acquired, is a toxinemia with secondary auto-immunization to a quasi-normal function; that the scorbutic affections are chemical auto-intoxications, hemorrhagic only because the blood is especially involved; and that the purpura rheumatica group is only a manifestation of ordinary rheumatism or sepsis. After this exposition of their very diverse nature, it seems clear that the old class of the hemorrhagic diseases has become obsolete, should be relegated to the domain of historic medicine, and cease to appear in our monographs and text-books to further puzzle the student and physician.

I add a few lines concerning certain rare and obscure types. As to Henoch's<sup>58</sup> purpura, that clinician's original description makes it certain that we are dealing with a form of sepsis. It has since that time been observed in adults as well as children, and Osler<sup>59</sup> does not hesitate to make it variation of our last group, with visceral manifestations. As to Weil's disease, acute infectious icterus, I mention it here chiefly on account of the recent suggestion of Leiblinger<sup>60</sup> that it also might be of rheumatic origin, an interesting example of the present trend of thought on this subject. Winckel's disease, melena neonatorum, paroxysmal hemoglobinuria, and allied clinical pictures must be regarded not as distinct entities, but as symptom groups; like the other outwardly similar conditions, they have been placed among the hemorrhagic diseases; their proper position is under the various heads of sepsis, congenital syphilis, malaria, auto-intoxications, and so on, according to the individual case.

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## MEDICAL PROGRESS.

### SURGERY.

#### Operative Treatment of Chronic Bright's Disease.

—This operation has won a great many admirers during the past two years in spite of the general belief, at first, that it could not possibly give more than temporary relief to this much dreaded disease. R. GUITERAS (N. Y. Med. Jour., Nov. 7 and 14, 1903) has collected 120 cases which have been operated upon for this condition. Some interesting points in regard to the rationale of the operation are discussed. Investigations upon dogs seem to prove that the anastomoses between the kidney vessels and the parietal ones is not so great as has been supposed by some. The anastomoses which do occur are found principally between the kidney and the wall of the abdomen upon which it rests. The fatty capsule seldom contains any blood vessels of any importance. It is, therefore, doubtful whether it is advisable to completely decapsulate the kidney. Furthermore it is found that after a few months another capsule is found just as strong and resistant as the first, and it is suggested now by many that the good results which are obtained by this operation may be referred more to the diminution of renal tension than to the increased blood supply to the kidney. If this is true, it would support the belief held by so many that the results are more or less temporary even at the best. From these reports which were received he concludes that chronic nephritis should not be operated upon till medical treatment has proven of no avail. The time for operation is when it is noticed that the process is advancing rapidly and we fear that the heart will soon be overtaxed. The best results have been obtained by operation upon a single movable kidney, the seat of chronic Bright's disease. The most unfavorable cases for operation are those of diffuse nephritis and when there is general anasarca with bad heart the operation should not be done. Where there is marked destruction of the kidney substance the patients may be relieved for a few weeks, but they generally fail again and die when the capsule begins to contract.

**A Case of Spastic Ileus.**—It was considered doubtful if intestinal obstruction could be caused merely by a tonic contraction of the intestines, but the case of D. PANKOW (Münch. med. Woch., Nov. 10, 1903) certainly admits of no other explanation. After a combined hysterectomy and nephrectomy, extreme meteorism and feculent vomiting appeared, and the patient seemed lost until an artificial anus brought unexpected relief. At the operation the descending colon was found contracted to the size of a lead pencil, the remaining intestines were enormously distended. The anus could not be closed before eight weeks, since all previous attempts caused a repetition of the symptom. The cause was probably the same as in pylorospasm secondary to peptic ulcer; local losses of substance caused by circulatory disturbances in shelling out the uterus.

**Present Status of Subarachnoid Cocainization.**—The enthusiasm with which the use of cocaine by lumbar puncture was greeted a few years ago was, for a

time, most pronounced, but its employment now seems to be advised only by a few surgeons, and only for special reasons then. In spite of the reaction which seems to have set in against this method of anesthesia E. G. MARK (New York Med. Jour., Oct. 31, 1903) has investigated the results which have been obtained by himself and many other able surgeons in this country and abroad, and finds that the reasons for its disuse are by no means so important as is generally believed. In regard to mortality only one case has been reported that could legitimately be placed to the credit of cocaine. Several others have been reported, but in each case no connection could be traced between the cocaine and the mode of death. The disagreeable symptoms which sometimes follow its use are probably not due so much to toxic effects as to shock, and may follow the injection of an equal amount of salt solution. These symptoms are seldom more than transitory. No case of infection has been reported and hence this danger must be very slight. There is, however, one valid objection, and that lies in the fact that in some cases the analgesia is of too short duration for prolonged operative procedures, sometimes lasting less than thirty minutes. He has addressed letters to a large number of the most able surgeons in the country, and believes from the answers he has received and from his own experience the following conclusions are justifiable: (1) That the method is as safe as, if not safer, than general anesthesia; (2) that we may safely employ up to  $\frac{1}{100}$  of a grain of cocaine without fear of toxic results; (3) that shock is decidedly less than that of general anesthesia; (4) that on account of the variability in the length of its analgesic action it is contraindicated in prolonged operations.

**Surgical Interference in Hanot's Disease.**—The type of cirrhosis of the liver, which has been successfully subjected to operation is the atrophic form in which ascites is a prominent symptom on account of the obstruction to the portal circulation. J. ROSENSTERN (Med. Rec., Nov. 7, 1903) has operated upon two cases of hypertrophic cirrhosis, the first one as a result of a mistake in diagnosis and the second one intentionally. In both the omentum, gall-bladder and superior surface of the liver were sutured to the anterior abdominal wall, after scarification was done, and anastomotic channels thus formed between the parietal and portal circulations. Marked improvement occurred in both cases and, in fact, the symptoms have practically disappeared. The reason for this improvement is unknown, but a fanciful theory advanced by the author is that in this disease there is primarily a hypertoxicity of the intestinal blood, which in passing through the liver causes the new tissue growth around the biliary canaliculi. The liver is thus made more unable to cope with this toxicity of the blood brought to it, and the system is poisoned by a direct flow of a large quantity of this blood loaded with impurities passing unchanged into the general circulation. By compelling a part of it to follow this circuitous route it is believed that a part of the purification may be effected in this way, and less work be demanded of the liver cells themselves.

**Colloidal Silver in Erysipelas.**—Numerous favorable reports have appeared from France and Germany in regard to the use of colloidal silver by intravenous injection in various infective diseases. W. COLEMAN (Med. Rec., Nov. 21, 1903) has been using this remedy in several cases of erysipelas, and thus far has been surprised at the prompt and decided benefit which has resulted. Within a few hours there is usually a marked diminution of the symptoms with reduction of temperature, and in twenty-four hours the evidences of inflammation are frequently almost absent. He recommends

the use of from 5 to 10 c.cm. of colloidal silver being injected slowly and directly into any large vein, preferably the large ones at the bend of the elbow. No disturbing symptoms have resulted, except perhaps a slight temporary rise of temperature. The frequent use of this drug in various conditions has seemed to prove the harmlessness of it, and although too few cases of erysipelas have yet been treated to warrant any valuable conclusions, yet it promises to be, at least, an important adjunct to other methods.

**Surgical Treatment of Gastropexia.**—The various measures recommended for gastropexia are numerous, yet many cases are benefited but slightly after years of treatment. It is for this reason that D. HAMMER (Münch. med. Woch., Dec. 1, 1903) warmly advises gastro-enterostomy. Frequently the diagnosis is not absolutely certain; the symptoms may be so severe and the dilatation of the stomach so excessive that a pyloric stenosis suggests itself, but if the patient consents to operation, a clear idea of the pathological condition can be obtained. Medical treatment is troublesome and only possible with patients in good circumstances, the improvement lasts only while lavage, careful diet are continued, but with operation the cure is permanent and little risk is incurred.

**Functional Renal Diagnosis without Ureteral Catheterization.**—Renal diagnosis by means of ureteral catheterization and cryoscopy are considered too complicated and unreliable by F. VOELCKER and E. JOSEPH (Münch. med. Woch., Dec. 1, 1903) to admit of general use. The use of methylene blue would be ideal were it not for the fact that this dye is not evenly excreted since changed in part into a colorless oxidation product. In a series of experiments, iodide of potash was given and the bladder filled with a solution of peroxide of hydrogen containing starch. After introducing the cystoscope the discharge of urine, which became converted into a blue cloud, could be easily observed. Since the fluid became too dark for further observation in a short time, the authors continued their experiments and finally discovered an ideal dye in indigo-carmin to replace methylene blue. Injected in doses of 16 centigrams into the gluteal muscles, it is absolutely harmless and possesses the further advantage of being excreted solely by the kidneys. The excretion is absolutely uniform; it begins in 15 to 30 minutes, reaches its maximum after two hours, and then gradually disappears during the next ten hours. An accurate study of the action of both kidneys is possible even in cases where one cannot find the ureteral orifices and truly beautiful pictures are obtained with the cystoscope. The method fails only in cases of prolapsed uterus and vagina, since here the discharge of urine is into a cul-de-sac behind a prominent bar of tissue and hence invisible to the eye. In prostatic hypertrophy and uterine tumors much better results are obtained than with urinary segregators. One great value of the method lies in the fact that the actual amount of functioning tissue in each kidney can be estimated by observing the frequency of contraction and the size and color of the blue cloud, which rises in the colorless fluid. It is also possible to determine approximately the specific gravity of each urine by introducing solutions of known density into the bladder and then observing if the cloud rises or falls.

### THERAPEUTICS.

**Antistreptococcus Serum in Phthisis.**—Tuberculosis as such gives a fair prognosis and most uncomplicated cases can be cured with proper climate and care. With the appearance of secondary infections the outlook becomes much more grave and an extended

trial of the new antistreptococcus serum seemed in place, especially since streptococci are found in most cases. D. MENZER (Münch. med. Woch., Oct. 27, 1903) believes that all cases where heart and digestive tract are still in good condition are suitable. He begins with half a cubic centimeter of the normal serum and repeats this dose in four to eight days, according to the reaction. Gradually the amount is increased up to 2 to 3 c.cm. The best site of injection is the thigh or arm. In from four to six hours reaction sets in manifesting itself in headache and increased cough, and expectoration with abundant leucocytes and degenerated cocci and tubercle bacilli. Occasionally the latter are demonstrated for the first time during this period. The temperature rises up to 37.6° to 39° C., abundant râles are heard over the lungs and a slight increase of leucocytes can be detected in the blood. A marked improvement in the general condition of the patients followed in almost all cases.

**Properties of Radium.**—An interesting résumé of the properties of radium is found in the article by S. G. TRACY (Jour. of Adv. Therap., Dec., 1903). It appears that this wonderful substance is capable of emitting three kinds of rays: Cathode and Roentgen rays, and rays due to positively electrified true atoms. Their combined effect resembles the X-rays closely, but it takes a much longer time to take a photograph similar to a radiograph. It has been proved to the satisfaction of medical men that radium salts have a positive effect upon diseased tissue and even at this early stage it looks as if their use were indicated in lupus and other forms of tuberculosis, rodent ulcer and some cases of deep cancer in chronic skin disease, atrophy of the optic nerve and blindness from other causes. The radium rays give more promising results in these conditions than other rays.

**Effects of Roentgen Rays on Animals.**—If a small amount of radium bromide is allowed to act upon small mammals at a distance of 12 to 15 centimeters, marked emaciation, dermatitis and death will follow in about three weeks. The Roentgen rays are more active and kill white mice after an exposure of 5 to 19 hours, even before a dermatitis has set in. The autopsy on such animals is somewhat disappointing, according to H. HEINECKE (Münch. med. Woch., Dec. 1, 1903), since the spleen alone shows lesions. As these lesions point toward a destruction of red cells, the writer believes that the rays kill by their deleterious action upon the blood. Though death was equally rapid where the head was protected by lead foil, it is still possible that the central nervous system is also implicated, since the ganglionic cells were also found abnormal when stained according to Nissl.

**Some Morphine Derivatives.**—The effects of morphine, codeine (methyl-morphine), and dionine (ethyl-morphine) are of the same general nature, differing only in the degree of their manifestation. For example, following a lethal dose of morphine the sleep is profound and convulsive manifestations are late and of little importance, while after codeine sleep is light, and there are attacks of epileptiform convulsions during one of which death takes place. Both drugs cause slowing of respiration and heart and lower blood-pressure, but morphine much more than codeine. Dionine, the higher homologue, acts like an intensified codeine, producing more fleeting sleep, more intense convulsions, and more marked depression of respiration, pulse, and blood-pressure. The question then arises, Do the "apo" derivatives of these bodies form a similar pharmacological series? To determine this A. MAYOR and E. FONTANA (Rev. Med. de la Suisse Romande, Oct. 20, 1903) have made a comparative study of the hydro-

chlorates of apomorphine, apocodeine and apodionine. Apomorphine produces vomiting in man and certain of the lower animals. In the dog, in addition, it induces a dreamy condition followed by a restless delirium. Sometimes, especially in mental conditions, it induces somnolence in man. Apocodeine produces neither vomiting nor delirium, but on the contrary, causes purging, muscular weakness, and sleep like that from codeine. It was hoped that apodionine would show the effects of apocodeine in increased degree, and would prove a valuable purgative for hypodermic use, especially as dionine itself is not infrequently laxative. However, apodionine has been found to be less potent than apocodeine, and to have an action between that of apocodeine and apomorphine. Sometimes it purges, sometimes it induces vomiting, but it is too inconstant for employment either as purge or emetic. To the heart all three substances are depressing, and a number of cases of collapse from apomorphine have been reported. Death from toxic doses of the morphine derivatives is due to paralysis of respiration, but if artificial respiration be maintained the heart will continue to beat. If then the administration of the drug is continued, the heart finally succumbs from direct action on its muscle or contained ganglia. The quantity of morphine and its ethers necessary to thus overcome the heart is four or five times as much as will stop respiration, except for peronin (benzyl-morphine), which is so depressing to the heart that paralysis takes place with very slight dosage after paralysis of respiration. Of the apo derivatives under consideration the dose per kilo to stop respiration in the rabbit is for apomorphine 0.099 gm., and to stop the heart 0.115 gm.; for apodionine, 0.81 gm. for respiration and 0.130 gm. for the heart; and for apocodeine 0.054 for respiration, and 0.152 for the heart. Apocodeine is, therefore, least depressing to the heart and most depressing to respiration. This latter effect is less than that of morphine and greater than that of codeine. Apodionine, then, will probably be of little use in therapeutics, apomorphine will continue to be used as an emetic, and apocodeine will be employed as a sedative.

**Treatment of Surgical Shock With Adrenalin.**—Laboratory experiments apparently show that adrenalin by intravenous injection is a very powerful cardiac and vasomotor stimulant. Its clinical value in the human subject is, however, somewhat uncertain. The toxic dose for man is not as yet known, but it is probably several hundred times greater than that in which the drug is ordinarily given. EDWARD MARTIN and M. E. PENNINGTON (*Am. Med.*, Nov. 21, 1903) have recently employed it in six cases of shock, all of which exhibited symptoms of impending death. They did not feel that the present knowledge of its powers or toxicity was such as to justify its employment in cases where there was any hope of recovery by other methods. In two of these cases the effect of the intravenous injections of adrenalin was immediate and unmistakable, the recovery from the operative shock being well marked, although both patients died from sepsis a week later. Because of the tendency to abscess formation at the seat of injection incident to the ischemia caused by strong solution, the dilution should be at least 1-10,000, when the drug is given hypodermatically. It is not probable that any effect can be expected from less than 2 c.c. of the 1-1,000 solution. It is also apparently safe to give an initial dose of the strong solution in 90 c.c. of normal salt solution. In cases of urgency adrenalin chloride should be given intravenously in a dilution of 1-10,000, quite slowly, so as to prolong the effect of the drug, and should be pushed up to 100 c.c. of the strong solution or until the heart responds clear-

ly to its influence. The authors conclude that there is as yet no convincing clinical proof to the effect that the drug is as efficacious when used in man as laboratory experiments would lead us to suppose. The clinical evidence also suggests that it lessens the bacteriolytic power of the blood of man in a manner similar to that known to take place in animals, and its use in cases of infections should, therefore, be practised with caution.

#### PHYSIOLOGY.

**The Influence of Electrolytes on the Action of Amylolytic Ferments.**—Inasmuch as the results obtained by many investigators with respect to the action of acids on salivary digestion, do not agree, S. W. COLB (*Jour. of Physiol.*, Nov. 2, 1903) undertook an investigation into the question with the object of finding, if possible, an explanation of the discrepancies. He found that it is necessary to distinguish carefully between the action of saliva and that of ptyalin. In studying the action of saliva, one is actually studying the action of ptyalin as modified by the influence of the other varying constituents of saliva, such as sodium carbonate salts, mucin and other proteids. It might reasonably be expected that the influence of various conditions on the rate of action of the purified ferment does not correspond with their effect on normal or even diluted saliva. The author found that the action of dialyzed ptyalin on dialyzed starch is increased by the addition of very small amounts of acids and of the neutral salts of strong monobasic acids. The sulphates accelerate the action considerably, but not nearly so markedly as chlorides and bromides. In the case of the chlorides the acceleration seems to be due to the influence of the chlorine ion, all chlorides having about the same effect. The action, however, is decreased by the addition of larger amounts of acid (0.0007 to 0.0012 per cent. of hydrochloric), and by the neutral salts of weak monobasic, dibasic and tribasic acids. The following hypothesis is brought forward to relate these facts: The hydrolysis of starch by ptyalin is accelerated by the presence in the solution of electro-negative ions (anions), other than hydroxyl ions, and depressed by the presence of electro-positive ions (kations), and by hydroxyl ions. The acceleration due to a negative ion varies with the nature of the ion, being greatest for the anions of strong acids, and least for the anions of weak acids. An optimal concentration of these anions can be reached, the further addition being without effect. The ferment is destroyed by a certain concentration of hydrogen ions. The effect of any electrolyte upon the rate of action is compounded of two factors: The acceleration due to the anion and the depression due to the kation.

**Temperature Variation in Nocturnal Animals.**—Having established the fact that the temperature curve in monkeys is dependent on the alternation of cycles of activity and rest, J. J. GALBRAITH and S. SIMPSON (*Jour. of Physiol.*, Nov. 2, 1903) found it of interest to investigate the conditions which obtain in nocturnal forms. They discovered that the owl exhibits a temperature-wave the inverse of that in other birds. It was also noted that in comparing various birds the smaller the bird the greater is the diurnal variation and that the mean temperature of the female is, as a rule, higher than that of the male.

**Protoplasmic Activity of the Renal Epithelium.**—By injection of various pigments into the circulation, W. S. CARTERS (*Jour. Amer. Med. Ass'n*, Nov. 21, 1903) sought to determine the method of their elimination by the kidneys. His results indicate that pigments are excreted by a protoplasmic activity of the renal epithelium. They do not exclude the possibility of fil-

tration of some of the pigment through the glomeruli. On the other hand, when ammonium carminate is used the sections indicate that this is the case. It should be borne in mind that both processes may operate at the same time.

**Influence of the Nerves Upon the Artificially Revived Heart.**—To what extent the nervous mechanism regulating the heart-beat is capable of surviving somatic death, was the subject of an investigation by H. E. HERING (Pflüger's Archiv, Oct. 6, 1903). The latter had already demonstrated that if in a mammal after death the heart be perfused with defibrinated blood, it is possible for a long time to get positive results by stimulating the vagus and the accelerans. In the present series of experiments the author used hearts which had been resuscitated by means of an artificial circulation of Ringer's solution. He found that under this condition he could elicit all the various manifestations of the effects of the cardiac centrifugal nerves, namely, the slowing, pause and weakening associated with vagus stimulation, and the acceleration and strengthening accompanying stimulation of the accelerans. The longest period of completed vagus inhibition was observed in a dog's heart and amounted to seventy-five seconds. The author was able to corroborate the interesting results obtained by Kuliabko with hearts resuscitated a long time after death. Exceptional opportunities were afforded him to carry out his researches on the hearts of anthropoid apes. His results with hearts resuscitated a long time after death show that even then the centrifugal cardiac nerves may be aroused into activity and that the vitality of the accelerans lasts longer than that of the vagus. These results are of exceptional significance inasmuch as in the long interval following death there was no circulation of blood or of other fluid in the nerve-fibers, and inasmuch as one would expect that the labile molecules of the nerves would succumb long before the dissolution of the cardiac muscle. Of interest from other points of view are the results of two experiments which were negative. In the one there is seen the possibility of reviving the heart, although not the cardiac nerves, one and a half hours after death caused by strychnine poisoning following a long period of chloroform narcosis. In the other, also on an ape, the animal after having been inoculated with tetanus, was killed by bleeding and the heart removed and placed on ice. Fifteen hours later the heart was revived, but no effects could be obtained on stimulation of the centrifugal nerves. In one successful case, three hours after the death of an animal that had been inoculated with tetanus, distinct results were obtained by stimulating the vagus and the accelerans. In a more remarkable case, the heart of an ape was resuscitated after three successive intervals, namely,  $4\frac{1}{4}$ ,  $28\frac{1}{2}$  and 53 hours following death. In the course of the last interval the heart was twice frozen as hard as a rock. The vagus effect was obtained six hours after death, and the accelerans effect as late as fifty-three hours after death. This result would seem to cast some doubt upon the generally accepted doctrine that in the process of death the central and peripheral nervous systems are the first to succumb. The author taking into consideration the influence of the accelerans, which, as the above experiments show, survive that of the vagus, is able to submit the two following alternative hypotheses, namely, it is possible to rehabilitate the function of the cardiac ganglia fifty-four hours post mortem, in the course of which time the heart has been completely frozen; or at the end of this long interval the cardiac ganglia have long lost their capacity to function, the accelerantes acting upon the heart without the mediation of ganglion

cells, and in this event, the cardiac ganglia could not be considered the source of automatic stimuli to the heart-muscle.

**New Studies in the Suprarenal Glands.**—In the course of investigations on the comparative anatomy of the suprarenal bodies, S. VINCENT (Jour. of Anat. and Physiol., Oct., 1903) finds that the suprarenal capsule of mammals consists of two separate and distinct glandular organs, which are anatomically conjoined, but developmentally and physiologically quite unrelated. The cortical portion, representing one of the organs, is of glandular form and structure, but nothing is known of its function, and its development is the subject of some discussion. The other organ, namely, the medulla of the mammalian suprarenal, is part of the system of "chromaffin cells," which are found also in various places in relation to the sympathetic nervous system. Imperfect is the knowledge of the physiological significance of these masses of chromaffin cells, whether in the suprarenal medulla or wherever else they may be found. The consensus of opinion, however, among most recent workers is that they are developed from the nerve cells of the embryonic sympathetic ganglia (or from the original neural epithelium), and that they are, when fully developed, highly specialized secreting cells which manufacture and pass into the blood-stream a very powerful substance, whose function is to maintain the tone of muscular and other tissues throughout the body.

**Experiments with Rennet and Anti-Rennene.**—A series of investigations were prosecuted by J. MCFARLAND (Jour. Amer. Med. Ass'n., Nov. 21, 1903), which confirm Morgenroth's discovery that the repeated subcutaneous injection of rennet into an animal is followed by the formation of an antibody inhibiting the action of the rennet. They show that properly prepared mixtures of rennet and anti-rennene give a specific precipitate, and show for the first time that the action of the anti-rennene is infinitely more powerful when the two are united and allowed to stand for some time, before being added to the milk, than when immediately added to the latter. This phenomenon is analogous to the interaction of venom and anti-venene.

**A Chemical Study of Hibernation.**—In pursuing a chemical investigation of the hibernating gland of the hedgehog, E. W. CARLIER and C. A. LOVATT EVANS (Jour. of Anat. and Physiol., Oct., 1903) confirm the remarkable fact that life during hibernation is maintained practically upon fat alone, a condition made necessary by the well-known inability of the animal body to store up a supply of nitrogen. If the hibernating animals had not acquired this power of living without a constant supply of nitrogenous food, hibernation would have been an impossibility.

**Conditions Influencing the Diurnal Wave in the Temperature of the Monkey.**—The proximity of relationship between the monkey and man, renders physiological observations on the former of peculiar interest. J. J. GALBRAITH and S. SIMPSON (Proc. Physiol. Soc., Jour. of Physiol., Nov. 2, 1903) find that the diurnal temperature variation in the monkey is considerable. The rise always occurs during the period of activity, the fall during the period of rest. The wave is independent of the room temperature. In one series of experiments the monkeys were kept in darkness during the day and in artificial (electric) light during the night, and they were now fed at 6 A.M. and 9 P.M.; their periods of activity and rest were thus reversed. This was done with the view of ascertaining how far the curve is influenced by the so-called "hereditary disposition." The result was a complete reversal of the wave within twenty-four hours of the change

in the periods. In order to investigate the relation of light to the occurrence of the diurnal wave, the monkeys were kept in total darkness for a week. The wave, greatly modified, persists for some days and then totally disappears. These experiments show that the temperature control in monkeys is less perfect than in man.

**The Question Concerning the Existence of Cardiac Ganglia.**—It had been discovered by H. E. HERING (Pflüger's Archiv, Oct. 6, 1903) that in a heart resuscitated by means of an artificial circulation of Ringer's solution the accelerans fibers retain their irritability a much longer time than those of the vagus. This suggested the alternative hypotheses, namely: Ringer's solution is capable of preserving or arousing the vitality of the intracardial ganglia for many hours after the death of an animal, or it is not capable of doing this. In the latter case the intracardial ganglia are not the source of automatic impulses to the heart-muscle, nor are they part of the circuit carrying impulses to the heart along the centrifugal cardiac nerve. In discussing the theoretical and experimental aspects of this problem, the author finds that the experiences of Langendorff, Langley and himself teach that preganglionic stimulation of the sympathetic nerve after the death of an animal has no effect at a much earlier period following death than postganglionic stimulation. The last has also found that the vitality of the vagus and accelerans outlasts that of the preganglionic sympathetic. Moreover, Ringer's solution is not capable of preserving or arousing the activity of the sympathetic ganglia. Besides, the intracardial apparatus can bear the condition of anemia much better than the extracardial sympathetic ganglia. These results lead the author to conclude that the intermediate nervous mechanism in the heart is not the same as that contained in the sympathetic ganglia outside the heart, and that in all probability, at least as far as the accelerans is concerned, the intracardial nervous apparatus does not consist of ganglionic cells, and that the latter are not the source of automatic impulses to the cardiac muscle in the adult mammal any more than in the mammalian embryo. The author had shown that the vitality of the accelerans outlasts that of the vagus. Among the many known poisons there is none which exclusively abolishes the accelerans effect, while there are many that abolish the vagus effect, leaving the accelerans unimpaired. This observation lends support to the view that the impulse of the accelerans reaches the heart muscle in a manner different from that in which the impulse travels from the preganglionic to the postganglionic sympathetic. Anatomy and physiology agree on this point: the accelerans is not connected with intracardial ganglia; but the vagus is thus connected, yet the impulse reaches the heart from the extracardial vagus in a manner different from that in which it passes from pre- to post-ganglionic sympathetic; or, on the other hand, the vagus is not connected with intracardial ganglia, the latter having, as His, Jr., has pointed out, a sensory or vasomotor function.

## HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

**Blood Examination in Scarlet Fever.**—In about 15.5 per cent. of scarlet fever cases, G. JOCHMANN (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 3 and 4) could detect the streptococcus in the blood during life. The germs were identical in every way with the *Streptococcus pyogenes erysipelatos*. Examinations during the height of the eruption, on the first or second day,

were always negative. Clinically the cases did not differ from other severe scarlatinas without bacteriuria. Another proof that the germs have nothing to do with the severity of the disease is offered by the fact that they were never found in the hyperacute cases. A positive blood culture renders the prognosis very grave; in general it may be said that death will set in one or two days after the invasion. Where the immediate cause of death was nephritis, cocci were encountered in as high as 50 per cent. At best the number of germs found is small as compared with the large number often present post mortem; yet there are many reasons to believe that an actual multiplication occurs during life. In some cases a blood-examination half an hour before death was negative and twenty-four hours after death strongly positive, which made it seem as if a migration occurred even after the circulation has stopped, but animal experiments showed that the abundance must be attributed solely to multiplication on an especially suitable medium. There is no question that septicemia plays an important part in scarlet fever, so important that occasionally the primary disease is entirely overshadowed. It would be a mistake, however, to bring streptococci into etiological relation with scarlet fever, since their usual site, the tonsil, occasionally does not harbor them, and in very many cases they are found here in abundance in health. The morbid processes of scarlet fever merely break down the natural barriers and permit of an invasion of the blood and the internal organs.

**Glycogen in Fever.**—The experiments of D. ROLLY (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 3 and 4) prove that glycogen disappears from the body in toxic fever, hunger, muscular exertion and artificial fever caused by cerebral injury. The liver is the first organ to lose its glycogen and since the temperature is highest here, it is probably due in great part to the destruction of this carbohydrate. If animals are rendered entirely free from glycogen, injury to the striate body will no longer be followed by fever; if, however, the animals are now fed with sugar, rise of temperature will again appear. Pathogenic microbes and their toxins cause fever, no matter whether glycogen is present or not. The increased excretion of nitrogenous bodies after injury to the heat center is not a direct result of this, but is caused by the increased combustion of animal tissue incident to the high temperature. With toxic agents the amount of nitrogenous excreta is much higher, since they themselves cause proteid dissolution as well as glycogen combustion. Fever in general, is thus accompanied by two parallel processes: a specific destruction of the proteid affected by the toxin and a central irritation acting upon the glycogen.

**Blood in Malignant Disease.**—Careful examinations of the blood so frequently clear up the diagnoses of cases which are otherwise obscure that it has been greatly regretted that more information could not be obtained from the blood of malignant diseases. E. N. CUNLIFFE (Med. Chron., Sept., 1903) has examined the blood of 90 cases of malignant tumors and finds that his results correspond in a general way very closely with former investigators. The most constant and characteristic feature is the decrease which takes place in the amount of hemoglobin and in the hemoglobin index. Decrease in the number of red cells is usually met with in advanced cases or in those complicated by hemorrhage, but many early cases show no diminution. Leucocytosis is the rule in malignant disease but may be absent in early cases and sometimes in advanced ones. The main factors causing leucocytosis are the occurrence of metastases, hemorrhage, cachexia, ulceration, and septic infection. Pyrexia has no apparent in-

fluence. Polymorphonuclear neutrophiles are usually increased in number and this may be so even in the absence of leucocytosis. Abnormal cells as normoblasts and myelocytes may be present in advanced cases.

**Nature of Fatty Degeneration.**—The following experiments of F. FISCHLER (Virchow's Archiv, Vol. 174, No. 2) prove that fatty degeneration is not caused by an actual conversion of cellular protoplasm into a fat but by deposit of fat from the circulation. A chemically pure soap was allowed to circulate through the kidney of a rabbit with glycerin, the animal then killed and serial sections made of the hardened organ. The endothelial cells presented a finely granular appearance, while the tubular epithelium was in a condition of acute degeneration. With sudan all the granules were stained intensely, the fatty deposit being most marked in the convoluted tubules of first and second order, less so in the cells of Henle's loop. The tissues in the neighborhood of vessels were most affected, especially where an artery and vein were present close together. The experiments are an evidence of active chemical changes in the cells as the soap was first split up and the fatty acids then combined with the glycerin to form fat, which took the place of the altered cellular protoplasm.

**Pathogenesis of Blood Diseases.**—It is still an open question whether connective tissue hypertrophy is a primary or secondary process in interstitial inflammation. An ingenious theory is advanced by S. M. ЗУРКИН (Virchow's Archiv, Vol. 174, suppl.), which, when applied to blood diseases, greatly elucidates this obscure chapter of pathology. It has been observed repeatedly that low organisms respond to all kinds of irritation by proliferating; as best example, a certain infusorium may be mentioned, which, when infected with parasites, begins to divide until each descendant is almost free from germs. This same phenomenon may be observed more frequently in the vegetable kingdom; in fact, almost the entire plant pathology has to deal with hyperplastic processes. The higher a cell is organized, the less marked will this phenomenon be, and in the highly differentiated cells of the human organs, degeneration takes its place. The connective tissue, however, being low in the scale, even in mammals, will proliferate. Hyperplasia and degeneration must thus be looked upon as two processes which may be induced by the same toxin circulating in the blood, and which go on simultaneously. The blood-forming organs (spleen, lymph-nodes and bone-marrow) are built upon the same type, their cells occupy an intermediary position in that they are capable of both degeneration and hyperplasia. Thus, in recurrent fever, the former is the rule, in most other infectious diseases, the latter. The order of pathological events with any intoxication would thus be as follows: Degeneration of the specific parenchymatous cells (degeneration of liver and kidneys in scarlet fever); degeneration and hyperplasia of the lymphoid organs (swelling of the spleen in typhoid); finally hyperplasia of connective tissue (chronic nephritis after diphtheria, scarlet fever, etc.). Infection such as influenza, measles and smallpox, which rarely cause swelling of the spleen, are not often followed by chronic inflammation, since the third stage can hardly be expected where the second does not set in. Cirrhosis of the liver need not be accompanied by a splenic tumor, since the action of alcohol may be purely local upon the liver; if, however, very large quantities are ingested it also exercises a destructive action upon other organs and then the spleen will swell. What has been said of the spleen also applies to the lymph-nodes and bone-marrow, for in almost all cases with splenic tumors the marrow will be found hyperplastic and lymphoid

marrow will take the place of the normal fat marrow in the long bones. In applying the above principles to the blood, we must look upon this fluid as an organ with the red cells as highly differentiated, parenchymatous cells, only capable of degeneration, as manifested by anemia, poikilocytosis, micro- and megalocytosis, stippling, etc.; and the leucocytes as lowly differentiated, interstitial elements, possessing the power to proliferate. The first effect of an irritant upon the blood would then manifest itself as chlorosis, simple anemia or pernicious anemia, where there is only a degeneration of the specific elements, though the last-mentioned disease may already belong to the second stage when the spleen and lymph-nodes are found swollen. Better evidences of the second stage are found in pseudoleucemia, where the erythrocytes show degeneration and the cells of lymph-nodes and spleen hyperplasia. Most cases of splenic anemia, including the first stage of Banti's disease, occupy an intermediary stage between pernicious anemia and pseudoleucemia, in that the proliferative changes involve the spleen alone and there is really no good reason to look upon Banti's disease as a separate affection, since there are also cases where splenic anemia is combined with myocarditis or interstitial nephritis, instead of cirrhosis. The third stage is represented by the various forms of leucemia; the increase of white cells here corresponds in every way to the hypertrophy of connective tissue in other organs. That all blood diseases are manifestations of the same pathological process in varying intensity is well demonstrated by the fact that they often pass over into each other and that transitional stages which were formerly classified with difficulty are common. The different varieties of leucocytes generally react differently toward stimuli; since the lymphocytes are more highly organized than the other leucocytes, it is easy to understand why acute leucemia is generally lymphocytic and why the lymphocytes increase first in every leucemia.

**Ultramicroscopic Examination of Fluids.**—The new microscope, which enables the detection of ultramicroscopical particles by lateral focal illumination has been put to the practical test in medicine for the first time by E. RAEHLMANN (Münch. med. Woch., Dec. 1, 1903), with most astonishing results. Solutions of various dyes were found to contain myriads of small particles, shining in their own color, in suspension. In mixed colors, the particles of all the ingredients could be identified, but occasionally new combinations were formed. A great future is promised for this discovery in the detection of contamination. Most histologists believe that animal tissues stain readily because they become impregnated with the dye, but it now seems more probable that the fine particles simply coat the delicate structures. Certain non-colored organic substances were then examined and it was found that albumin solution, though filtered three times, also contains the albumin in finest suspension. A new method of quantitatively estimating the amount of albumin suggests itself. In a one-per-cent. solution it is impossible to obtain details, since the particles lie too closely crowded; in a dilution of 1 in 100,000 they become distinct and are still visible when the amount of albumin is only two parts in ten million. Their size varies and the smallest are just visible as fine points. They are all engaged in active motion, which becomes less, the higher the dilution. In solutions of dextrin, gum arabic, glucose and lactose, particles of similar appearance are found. With glycogen they possess a characteristic grayish-white color, and a peculiar motion, which probably points to a special form of solution; as soon as a small amount of diastase is added they alter their characters immediately and appear like those of dextrin.

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## INSANITARY NUISANCES AND LEGAL PROCEDURE.

THERE is no doubt that great improvements will be effected in sanitary conditions in the near future by the feeling that those who neglect proper sanitary precautions are liable, criminally and civilly, for their negligence.

This principle will affect many people and many more actions than are usually considered to come under the head of those bound to maintain sanitary conditions. There are two things, for instance, that at the present time are attracting considerable attention and that undoubtedly are provided for by a definite statute of the penal code of New York State. These two are the failure of street railway and elevated railroad companies to furnish proper heating for their cars, especially during the rush hours when there is so much of additional drain upon their supply of electrical energy, and when sufficient power is not at hand to heat, as well as move cars. The other is the necessity for railroad companies to provide some other means for the disposal of the sewage inevitably connected with transportation facilities, than the crude barbaric method which now prevails, and which consists only of scattering excreta to the four winds of heaven, hopeful perhaps that somehow nature will care for it.

Section 385 of the penal code of New York State reads in part as follows: "A public nuisance is a crime against the order and economy of the State, and consists in unlawfully doing an act or omitting to perform a duty, which act or omission: (1) annoys, injures or endangers the comfort, repose, health or safety of any considerable number of persons."

According to this statute persons so doing are guilty of a misdemeanor and are liable to fine or imprisonment, or to both.

There seems no reason to doubt that this section will be construed by the courts in such a way as to cause railroads that permit the abuse of deliberately transporting passengers in cold cars, because of the company's failure to have on hand a sufficient supply of electrical energy for heating purposes, even at times of heavy business, to be adjudged guilty of a misdemeanor and liable, criminally and civilly, for their actions in the matter. That an action in damages would lie in such cases in favor of persons who either caught cold or whose health had been seriously disturbed by riding in such cold cars, there also seems no reason to doubt. It is a new application of legal principles to make the companies responsible in such cases. But then the whole question of the origin of disease not as an inscrutable dispensation of Providence, but as a result of the neglect of proper sanitary precautions, has come to be acknowledged only in recent years, and the rational method of establishing legal precedents is by suits for damages.

Every physician knows that many of the colds, and probably even such infectious diseases as pneumonia and bronchitis, are acquired as the result of exposure to cold under the unfavorable conditions of overcrowding that obtain in our street cars and public conveyances generally during the rush hours. Certain parts of the evils associated with the peculiar shape of New York and the necessities of transportation the companies cannot correct, but at least the proper heating of cars must be maintained.

The same section of the penal code would seem to cover very effectually the nuisance with regard to the scattering of excrementitious material along the roadbeds of our railroads which has recently been so deservedly called to public attention in the columns of a medical contemporary. There is no doubt in any physician's mind of the danger of this practice. Excrementitious material that is allowed to dry, to be then blown about by the wind may easily be carried into streams that sup-

ply drinking water, or even into houses in smaller towns to be deposited on food materials. Here again it is only in recent years that the danger of this procedure has been recognized, and there is little doubt that much typhoid has been in this manner distributed. The present crude system, however, of disposal of this material can readily be improved upon if the railroad companies really care to bring about an amelioration of existing conditions, and there is a crying need for reform. Like every other improvement, however, that affects public comfort but does not appeal to the financial department of a railroad, and neither adds to its earning power nor subtracts from its receipts, this change in present methods has not and will not come to actual consummation unless the companies are forced to it.

In New York State at least we should be in a position to secure this improvement without delay. The deadly car stove went after proper legislation. We seem only to need the enforcement of already existing legislation in the present case to enable us to get rid of the dangers of open water-closets in passenger coaches.

There seems then to be a legal remedy at hand in most cases of nuisances involving health even remotely, and there is only need of a few precedents in legal decisions to secure rights that now are woefully abused. If some of the wealthier classes would, when their illnesses are the result of these violations of statute, take the matter in hand precious safeguards for the health of the community could be raised up. Much of true charity can be thus accomplished without the dangers of pauperization or the waste in official salaries that so often discourage charitable impulses.

#### THE BENDS AND THE "SANDHOGS."

THERE is a great class of underground workers who because of their toiling in the darkness, are generally known as "human moles"; a select division of this class, whose members grub the soil from the bottom of caissons are known among their fellow-workers as "sandhogs." Under certain conditions, only partially understood, they suffer from a disease, one symptom of which is familiarly and jocosely known among them as the "bends"; a less graphic synonym is "caisson disease." Languages indeed draw their very breath from the vernacular of the proletariat.

Since construction work began on the new Manhattan bridge, five men have been killed by caisson disease. In the past it has not signified

much whether a dozen or more sandhogs were paralyzed or perished, it was the usual and expected thing for them to suffer periodically from the colicky pains they called the "bends." A few sandhogs more or less did not matter either to the public or to the contractors. Recently, however, a more important person has succumbed, viz., Dolan, a masonry inspector, and much public attention has, as a result, been called to bear on the subject. The Department of Bridges finds itself unable to employ inspectors who are willing to work three hours a day at \$10 because of the high rate of mortality. The last victim, it is stated, was examined by a competent physician prior to his undertaking the inspectorship, and entered the caisson apparently in perfect physical health. He died shortly after coming to the surface.

It is unnecessary to dwell at any length upon the etiology of caisson disease. It is well known that in bridge building and similar subaqueous operations, the caissons devised by Triger are in almost universal use. Pol and Watelle, who wrote widely on the physiological effects of compression, as observed on themselves, state that pains in the ears, slowing of the respiration and pulse, an increase of urinary secretion are among the first evidences of the response of the individual to the pressure. Certain muscular movements of a finer kind are impossible. They found themselves unable to whistle or to whisper. On the release of the pressure they experienced a sensation of cold dyspnea; the pulse rate rising from 55 to 85. These authors state that there is no danger in entering the caisson nor in a reasonably long continuance of exposure to the increased pressure, decompression being the real danger. Unless this be effected very slowly, sharp muscular pains may subvene, hebetude, loss of sensation, coma, deafness, blindness or sudden death—any or all may follow. Further local symptoms: swelling of the joints and a violent pruritus, known in the sandhog vernacular as the "fleas," have been described by Francois.

In 1866 Triger addressed a report to the courts in which he maintained that it was relatively easy to prevent caisson disease. The means suggested by him consisted in the use of woolen garments and in the proper manipulation of the lift-lock. Triger asserted that if seven minutes were allowed for decompression, the accident would cease. Eads, while building the St. Louis bridge, where he employed a pressure of  $4\frac{45}{100}$  atmosphere, concluded that the rapidity of the compression and decompression is a less important factor

than the prolongation of the sojourn in the caisson.

The pathology of the condition has been ascribed by certain writers to minute hemorrhages in the cord and elsewhere. Others, including Pol, Watelle and Hoppe-Seyler have accredited the condition to an escape of the gases from the blood and their return to the free state under the influence of sudden decompression. This does not affect the three gases of the blood equally. The proportion of oxygen is very little increased as the pressure is raised, that of the carbon dioxide remains constant. Paul Bert found the chief increase to be nitrogen. It is probably the liberation of this gas which gives the long train of symptoms familiar to all. It is of great interest that the paralyses almost invariably begin in the legs. The lumbar enlargement of the cord is affected more profoundly than any other.

Cohen states that the intensity of the accidents accompanying decompression depend (1) on the length of the exposure to pressure, (2) on the element of individual resistance, (3) upon the degree of pressure attained, (4) upon the rapidity of decompression. Bert advised that this be effected at the rate of from eight to ten minutes for each atmosphere, but some authors double the period.

All authorities agree that the only method of treating cases of caisson disease is by an immediate reestablishment of the pressure followed by a very gradual return to the normal.

Dr. Walter Bensel, Assistant Sanitary Superintendent of New York, on being asked what action the Board of Health proposed taking toward limiting this menace to the health of the caisson workers, replied that before any more extensive caisson work was undertaken within the city confines, steps would be taken for their protection. The use of suitable locks, which up to the present time has not been insisted upon, will be made obligatory. The present methods of decompression in the case of the Manhattan Bridge are crude to an astonishing degree. At the expiration of the hour and a half shift, sandhogs and inspectors simply swarm up the stand-pipe overlapping each other on the ladder. Here they stand for from one to three minutes and pass from 45 pounds pressure to 15. There is no suitable decompression chamber; no warmth, no ventilation. Until now, any type of man applying for the work has been allowed to qualify as a "sandhog." In future it is probable that only men under thirty and, so far as possible, those of a temperate habit, will be

permitted to enter these ranks. In general, the department will suggest as preventive safeguards against caisson disease, first, adequate decompression; second, suitable ventilation and warming of the chamber.

Inasmuch as authorities agree that no symptoms whatever need develop in these underground workers, if proper care be given them, it is obviously the duty of the municipality to force contractors to exercise that care, even if it result only in the saving of a sandhog's life or in limiting his suffering from the "bends" or the "fleas."

#### THE ROLE OF THE PANCREAS IN CARBOHYDRATE METABOLISM.

WITHIN the past few months two papers have appeared in German journals which deserve more than passing consideration owing to their important bearing on the rôle of the pancreas in the carbohydrate metabolism of the body.

In the first by O. Cohnheim, it has been conclusively shown that, while neither muscle tissue nor pancreas are individually capable of causing glucolysis, both combined will cause such alterations in added glucose that this is no longer demonstrable by the usual reduction tests. Cohnheim concludes that the glucolysis is referable to the action of a muscle ferment which in itself is inert, but is activated by a second substance derived from the pancreas in a manner perfectly analogous to the action of enterokinase upon trypsin. The rationale of this arrangement is apparent at once, if we bear in mind that in the liquid muscle plasma ferment and kinase could scarcely coexist; some mechanism must hence be available by means of which the kinase is furnished according to demand. This function rests in the pancreas. The degree of glucolysis of which the muscle tissue is capable, on the basis of Cohnheim's experiments, is considerable, and in the case of a grown man would represent a minimum of 200 grams of dextrose.

The second paper, by R. Hirsch, of Hofmeister's laboratory, points out that a relationship exists between the pancreas and the liver which is quite analogous to that demonstrated for the pancreas and muscle tissue. It is to be noted, however, that the liver itself is capable of altering glucose so that it is no longer demonstrable with the usual tests. The degree of this hepatic glucolysis usually varies between 20 and 30, but may attain the value of 50 per cent. If, however, pancreatic tissue is added to the liver tissue the glu-

colysis is much more extensive and occurs with greater rapidity; the loss of glucose may then amount to fully 80 per cent. Hirsch accordingly draws the same conclusion from his experiments as Cohnheim, viz., that the pancreas most likely furnishes an enzyme (kinase), which activates a glucolytic hepatic enzyme, that in itself is inert. The apparently independent glucolysis of the liver he explains by the assumption that the fresh organ, only recently removed from the body, still contains a small amount of the glucolytic kinase, which activates a certain amount of the hepatic ferment.

Further experiments in this direction with animals that have been rendered diabetic by removal of the pancreas are urgently needed. It is interesting to note that in human diabetes several observers have found the liver devoid of all glucolytic activity (Jacoby, Blumenthal and Feinschmidt).

As regards the fate of the glucose, Hirsch has satisfactorily demonstrated that the organic acids, which are always formed during hepatic autolysis, are not referable to this source nor was there any evidence to show that the glucolysis was associated with alcoholic fermentation. He was unable to isolate any products of its decomposition. Cohnheim, on the other hand, states that he could demonstrate carbon dioxide.

One notable difference apparently exists between the results of Cohnheim and Hirsch, namely the relative rapidity with which the glucolysis took place in the pancreas muscle tissue experiments as compared with the pancreas liver mixtures. In Cohnheim's experiments the glucolysis occurred principally within the first twenty-four hours, while with Hirsch no change whatever could be demonstrated during this time; the glucolysis here reached its highest point only after eight days. This difference is no doubt partly due to the different technic employed, viz., Cohnheim's method of complete cellular destruction, on the one hand, which would lead to a complete liberation of the intracellular ferments, and Hirsch's ordinary method of mechanical comminution without material cellular destruction on the other.

The important bearing which both papers have upon the subject of diabetes and the probable rôle which the pancreas plays in the pathology of the disease, suggests itself at once and invites speculation. We forego this temptation, however, in anticipation of further experimental data which have been promised.

#### HARMONY IN NEW YORK STATE.

IN the department of Special Articles the MEDICAL NEWS publishes this week two communications of more than passing interest to the profession in the State of New York.

Dr. McCormack pleads in his masterly manner for unification in our State and presents a plea for the County Society as a basis for the structure of the organized medical profession of the country. He tells us moreover, of the rapid strides that have been made throughout the United States in the matter of healthy organization, and to his plea for union and peace we offer a hearty amen.

That this unification is coming is made evident by the report of the Subcommittee of the joint committee of the New York State Society and the New York State Association, and we most cordially recommend to the profession of this State that this straightforward, dignified and thoroughly feasible plan of procedure be unanimously adopted at the next session of the New York State Society, now ready to assemble at Albany.

The profession in this State has long desired to be united. Here is the opportunity. Unite!

#### ECHOES AND NEWS.

##### NEW YORK.

DR. THOMAS DARLINGTON, COMMISSIONER OF HEALTH OF THE CITY OF NEW YORK.

The Commissioner of Health under the new City Government of New York City, whose portrait we present this week, is evidently a man of broad and liberal sympathies and of excellent education, who has constantly shown himself deeply interested in the affairs of the community around him wherever he chanced to live and his years of residence in different parts of the country must surely have brought him in contact with men of all kinds and conditions and consequently have given him that experience so necessary for administrative ability—knowledge of men.

Dr. Darlington was born in Brooklyn, in what was formerly called Williamsburgh. He was educated in the public schools of this city and in the Newark, N. J., High School. Later he took a special three years' scientific and engineering course at the University of the City of New York, followed by a three years' course at the College of Physicians and Surgeons of New York, from which he was graduated in 1880.

He practised medicine at Newark, N. J., 1880-82; was then at Kingsbridge, New York City, until 1888; at Bisbee, Arizona Territory, until 1891; and returned to Kingsbridge in 1891, where he has practised ever since.

He was district physician of the Seventh District, Newark, 1882; visiting assistant at St. Michael's Hospital, Newark, 1880-82; surgeon to the New Croton Aqueduct Corporation, New York, 1885-88; to the Harlem Canal Improvement Works, 1888; surgeon to the

Copper Queen Consolidated, and other mining companies, and to the Arizona and South Eastern Railway, Arizona, 1888-91.

After his return to Kingsbridge in 1891 he took an active interest in the affairs of the immediate community with which he was associated. He did not hesitate to give his time to the local school board and ever since the organization of his school district has sat as a member of the board. This was no perfunctory performance of duty for the purpose of attracting popular attention, but he was always known as one of those who would take practical interest in every affair relating to the improvement of the schools and no detail of school management was too trivial to receive his serious thought.

While thus devoting himself to school work he did not neglect other philanthropic opportunities, for instance, during the coal famine of last year, he had charge of the distribution of the free coal supplies contributed to the people of the Bronx by George W. Perkins, of the firm of J. P. Morgan & Co. At the same time he did not fail in his duties to the profession, nor to his patients. He was a faithful member of a number of medical societies, which are mentioned further on. He contributed a number of interesting, some of them very valuable, articles to medical periodicals. In 1888 he wrote on Pneumonia for the *New York Medical Record*, and another paper was contributed to the same journal on The Effects of the Product of High Explosives, Dynamite and Nitroglycerin, on the Human System. This paper was founded on his experience as surgeon to the new Croton Aqueduct Corporation, which was at that time building the tunnel for New York's water supply from the Croton valley. He had seen and studied a number of illustrative cases among the men working in the tunnel.

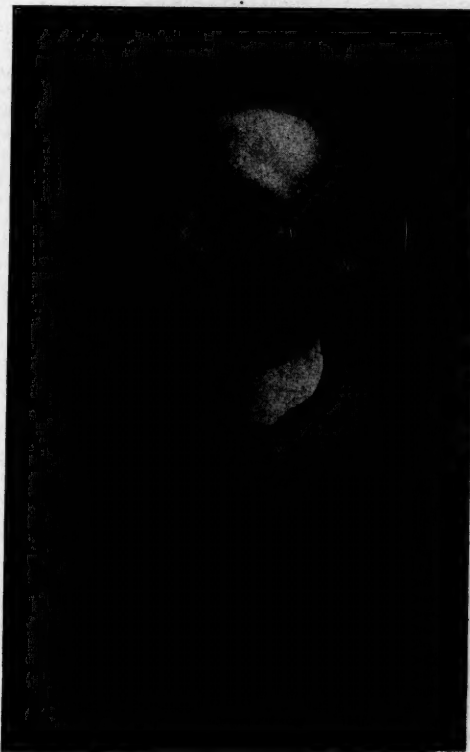
As a result of this experience he also wrote the article on "Tunnel-Poisoning" for the reference handbooks of the Medical Sciences. Later on, when business interests and his health required him to spend some time in a milder climate, he wrote on The Climate of Arizona and the Effect of Hot and Dry Climates in Disease, which was read before a session of the Congress of American Physicians and Surgeons, held at Washington in 1891. Dr. Darlington has not confined his writing to the strictly medical periodicals and has occasionally written literary articles of scientific bent for the *Youth's Companion*, of Boston, and more purely scientific articles for the *Scientific American*, of New York. He also was an occasional editorial contributor on hygiene and sanitation for the *Mail and Express* and certain other newspapers. All this shows that he is a man of breadth of intelligence and facility of expression. It is no wonder that he was so highly recommended for the position which has come to him. Among those who personally interested themselves for him by recommendation were Right Rev. Bishop Potter, Rev. Dr. George Alexander, Rev. Dr. George C. Bliss, Rev. Dr. G. A. Carstensen, the Rev. Dr. John Campbell, and a large number of brother physicians, as well as many of the prominent politicians of the Bronx.

At the present time Dr. Darlington is connected with the New York State and County Medical Association, the State and County Medical Society, the American Medical Association, the Medical Association of Greater New York, the Harlem Medical Association and the American Climatological Society, of which he is at present the vice-president.

Until his appointment as Commissioner of Health he held the following hospital positions in the Greater City of New York: Visiting Physician to the New York Foundling Hospital, of which he was the President of

the Medical Board for two years; Visiting Physician to the Fordham Hospital, to the St. John's Riverside Hospital, and to the Seton Hospital for Consumptives; he is consulting physician to the French Hospital.

Dr. Darlington comes of an old New York family and is a member of the Society of Colonial Wars and of the Tilden Club. He has always been prominent in politics and is one of the incorporators of the Jefferson Club. No interest of the neighborhood in which he lives fails to attract his attention, and accordingly he is a member of the Northside Board of Trade. With all this, he is a comparatively young man, being scarcely more than forty-two years old, and would seem to have the promise of a very brilliant future.



HEALTH COMMISSIONER DR. THOMAS DARLINGTON.

We wish him every success in his new position and have only to say that it distinctly spells opportunity and that a good administration in the Board of Health may have great potency for further political honors.

**St. Luke's Hospital.**—Drs. Walton Martin and Austin W. Hollis have been appointed on the visiting staff at St. Luke's.

**Dr. Lederle Retained.**—Commissioner Darlington has announced that upon his motion the Board of Health has voted to appoint former Commissioner Lederle as Consulting Sanitarian to the Board of Health.

**Death Rate and Cold Weather.**—The recent cold weather and the prevalence of influenza has been responsible for a large increase in the death rate, according to the records of the Board of Health. There were 1,635 deaths reported in the city during the past week, while for the corresponding

weeks in 1902 and 1903 there were 1,497 and 1,320 deaths respectively. The greatest increase was in the number of deaths from lobar pneumonia and bronchopneumonia, a total of 364, against 221 for the corresponding week in 1903, or 143 more. A great many of these deaths followed cases of measles and influenza. Last week 789 cases of measles were reported, as against 584 cases for the week previous, which shows that the wave is increasing at this time.

**Report of Post-Graduate Hospital.**—The nineteenth annual report of the New York Post-Graduate Hospital has just been issued. It is a neat little booklet of some 110 pages, printed on very good paper, contains a dozen full-page pictures of the staff, operating room, etc., a full account of its charities, cases treated and present needs, and is on the whole a rather de luxe affair as hospital reports usually go. Disbursements for the year amount to \$121,850.91; the receipts show a total of \$109,634.01, leaving a deficit of \$12,216.90, "paid and to be paid by the New York Post-Graduate Medical School." The total sum received by the institution as legacies since 1891 is \$33,141.29. The following gives an idea of the number of sick poor reached through its benevolent supporters: Number of patients occupying beds in the hospital during the year, 2,330; number of free patients treated in the dispensary, 19,346; number of free visits by patients to the dispensary, 76,936; number of free days of hospital care, 43,801.

**New Doctors' Offices.**—A movement is on foot to transform the Madison Avenue Hotel at Fifty-eighth street into a building for doctors' offices exclusively. It is proposed to have as tenants only members of the New York Academy of Medicine, or such others as may be approved by a committee composed of Academy members. The owners will make the building more attractive from a professional standpoint than similar buildings in other cities, provided that they have sufficient encouragement from the response that comes during the next fortnight.

**The Spitting Nuisance Again.**—Under caption of "Spot the Spitters," the *Commercial Advertiser* speaks editorially in its issue of last Saturday as follows: "Dr. Darlington of the Health Board deserves the hearty cooperation of every public-spirited person in the community in his crusade against the spitting nuisance. It is high time for a new crusade, for during the past few months there has been a recrudescence of this abomination, many old and incurable spitters, who were alarmed into temporary decency by Dr. Lederle's exertions to suppress their activities, having resumed operations in the street and elevated cars under the impression that the war was over. This is especially the case on the elevated trains, and nobody has ever discovered a guard interfering with the offenders."

"Dr. Lederle had printed in convenient little pads warning notices which passengers could carry in their pockets and hand to such persons who called public attention to their need of the elementary instruction in manners and decency inscribed thereon. It requires some 'nerve' on the part of the ordinary unobtrusive citizen, especially if he be small in stature and unskilled in the art of self-defense, to offer one of these slips to a muscular spitter, and it is asking a good deal of him to make the venture. It should not be necessary, in order to have the law enforced, that citizens should take upon themselves police duty."

**The Governor's Message.**—Among other things

the Governor's message contains some paragraphs upon health matters. He says of juvenile delinquents: The complaints made as to the management of the Home for Juvenile Delinquents have brought about two investigations, one by the management and one by the State Board of Charities. Both investigations have shown mismanagement, and both demonstrate the need of immediate action. Peculiar in its character, with limited power exercised by the State, it seems to me that the time has arrived for a change and for the assumption of this work by the State. While it is true that the Fiscal Superintendent has power over expenditures so far as the approval of estimates is concerned, the management of this asylum is entirely under the control of a private corporation. With a board made up of busy men, it is largely in the power of its superintendent to dictate its policies. Although its support comes almost entirely from the State, its officers are without the pale of the Civil Service rules which govern every other State institution and its management is self-perpetuating. Situated upon land which, in the event of removal or discontinuance of the asylum, must revert to the city, the State is annually called upon to contribute for betterments. Its close proximity to the greater city does not permit that healthy outdoor life which would be possible in a rural community; besides, the frequent visitations by many who should be kept away during the period which these youths are confined, is not always conducive to reformation. Experience at Rochester has demonstrated the wisdom of many of these conclusions, and to escape these evils the State has recently consummated the purchase of a large tract of ground for the removal of the Rochester Industrial School. Expense should not be a matter of serious consideration if results can be secured which make possible more complete reformation. The prevention of crime is more desirable than its punishment. Punishment may not be necessary if the playgrounds of the tenement population of our great cities are made attractive. Parks are as desirable as law, and sunshine brings out the best of man's nature. Therefore if the State should replace the asylum at Randall's Island with a similar State institution at some nearby point in an adjacent county, it would be of advantage both to its inmates and to those who could thereafter make use of the grounds now occupied by it for recreation.

**Charitable Institutions.**—The more modern methods of treatment of insanity, the consequent increase in requirements have brought us to an anomalous condition. Notwithstanding the additional space in hospitals, we apparently have not added to the dormitory capacity of our institutions. This to the uninformed seems like overcrowding and unwise economies. During the past three years appropriations amounting to \$3,170,000 have been made to meet these growing demands. In 1898 the capacity was rated at 20,656, and in 1901 it was reduced to 18,678. Thus it would appear that the State's ability to properly care for its insane population was lessened notwithstanding that large sums had been expended to increase the dormitory facilities.

During the past three years provision has been made for 5,147 new beds, so that if the old measurement of capacity of 1898 were in force we should have, when all changes are made, facilities for a population of 25,403. The present population is 24,187, with a rating in capacity of 23,825. From this statement it will be readily seen that under modern methods more cubic space per capita is allowed,

with resultant advantage. In every direction that which is for the benefit of the patient has been furnished. The total cost of maintenance for the year was \$4,104,689.23. Better discipline prevails among the employes, and the increased pay for the nurses has produced results which more than justify the additional expenditures involved.

**The Control of Consumption.**—The *Times*, in a recent editorial note, makes the following comment on the tuberculosis problem. It is a good campaign document. At the anniversary meeting of the New York Academy of Medicine lately held in this city, Dr. W. Gilman Thompson made several statements of great and general interest. That which seemed best calculated to challenge inquiry was the following:

"Within the past decade in the State of Massachusetts alone the mortality from tuberculosis has been reduced exactly one-half."

In view of the fact that between 1890 and 1900 the population of Massachusetts increased from 2,093,889 to 2,855,346, a net gain of 791,457, this statement was so startling as to demand verification. This we have been at pains to make, and the official facts are as interesting as the generalization to which they relate. Between 1885 and 1902, notwithstanding the increase of population above noted, the number of deaths from consumption in Massachusetts shows a decline from 5,955 to 4,685. During the period of fifty years since 1853 the death rate per ten thousand inhabitants of that State has declined from 42.7 to 15.9. This is full of encouragement, and shows without argument the value of State medicine intelligently directed.

Dr. Alfred Hiller, in *Public Health* of London, showed in March last that the change which has been constantly going on in the lessening death rate from consumption constitutes one of the marked features of the vital statistics of civilized countries. If the present rate of decrease in the mortality from this disease is continued uniformly, consumption should wholly disappear from England within the next half century. The same rule applied to Massachusetts would appear to show that the disease will be extinguished in that State within even a shorter period. Its death rate from consumption during ten years, per 10,000 of population, has been as follows:

Years.	Death Rates from Consumption.
1893 .....	23.1
1894 .....	22.3
1895 .....	21.9
1896 .....	21.7
1897 .....	20.8
1898 .....	19.7
1899 .....	19.0
1900 .....	18.5
1901 .....	17.5
1902 .....	15.9

The "white plague" is obviously controllable, and its extinction will be a beneficent achievement of medical science. As Dr. Thompson showed in the paper referred to, comparable results are being attained in the conquest of many diseases. In 1853 the mortality from yellow fever in the districts where it prevailed was as great as from the plague in other countries. To-day it is exterminated in places which have been its home for centuries. Malaria is no longer regarded as the abiding curse of certain localities. Sanitary engineering and sys-

tematic mosquito extermination can redeem them, and are doing so. The time is not far distant when the standard of a country's civilization can be better judged by its vital statistics than by those of its trade or finance.

#### PHILADELPHIA.

**Dinner in Honor of Dr. Mitchell.**—Members of the Franklin Inn gave a dinner January 6 in honor of the President, Dr. S. Weir Mitchell. Poems were read by Dr. Mitchell and others.

**Reorganization of Bureau of Health.**—The first move in the reorganization of the department of Public Health and Charities has been made by appointing Dr. A. A. Cairns Chief Medical Inspector. The vacancy created by Dr. Cairns's promotion will be filled by Dr. Thomas J. Beatty, at present an assistant medical inspector. Dr. J. Howard Taylor, the former chief medical inspector, on account of age, asked to be relieved from the responsibility of that position, and will be made an assistant medical inspector. There are still 37 additional assistant medical inspectors to be appointed. Nearly 200 physicians have already taken the examination for these positions with the prospect that many more will enter the competition.

**Physicians May Vary Charges.**—The right of physicians to charge fees in accordance with their patient's financial standing has been upheld by Judge Ashman in a recent opinion handed down in the Orphan's Court. The Judge said: "In my opinion, a physician may fairly demand, as the exceptant admitted was his practice, a maximum and a minimum rate of pay, just as the circumstances of his patients shall seem to indicate will be proper. It is true that a physician is unlike a tradesman, who has different qualities and therefore at varying prices; he is bound in every case to give his best service. But it does not follow that this service is worth the same in every case. The moral distinction between the code of the doctor who in theory has but one charge and in practice two, and his ruder but more candid brother who declares at the outset that he has a maximum and a minimum charge, fades away on the slightest analysis into a play upon words."

**College of Physicians.**—At the annual election held on January 6, Dr. Arthur V. Meigs was elected president, and Dr. James Tyson vice-president of this society. The majority of the minor officers were re-elected.

**Polyclinic Hospital.**—The annual "Corporator's Day," held January 11, was signalized by the opening of the new nurses' home, children's ward, and private rooms, these being part of the extensive improvements made during the past eight months. The work of the Polyclinic is increasing yearly, the clinics last year averaging 326 cases daily, and 1,173 persons were admitted to the wards. In the accident wards over 7,000 cases were received. Three adjoining properties are owned by the corporation, and on these an addition to the hospital will be erected as soon as \$75,000 can be raised.

**White Haven Leads in Consumption Cures.**—As a result of a recent thorough investigation of the White Haven sanatorium it is said that this institution shows better results than those of any other similar institution in the world. The investigation was made by Drs. Flick and Stanton of the Phipps Institute and the staff of the sanatorium. After examining the weight records, temperature charts, etc., each of the 103 patients was given a thorough physical examination. This showed that every one was

making progress toward recovery. The greatest progress has been made by the tent cases who remained in their accustomed place during the recent cold spell, though the temperature was 28° below zero. An exhibit will be made at the tuberculosis convention in Baltimore, January 25-28. No fear will be felt from comparison with the work of famous European institutions. Severe weather has caused suspension of work on the new buildings which, when completed, will make possible the accommodation of more than 300 patients.

**Pennsylvania Hospital.**—The oil painting of Dr. Thomas G. Morton presented to the Pennsylvania Hospital by a number of contributors was unveiled on January 11. The portrait was presented to the hospital by Dr. J. C. Wilson, on behalf of the Board of Trustees, and was accepted for the hospital by Dr. Arthur V. Meigs. Dr. Morton was connected with the institution for a period of forty years, many improvements and new buildings being added during this time as a result of his untiring efforts in its behalf.

**Tropical Medicine.**—The first public meeting of the American Society of Tropical Medicine was held at Houston Hall of the University of Pennsylvania on January 9, 1904. Dr. James M. Anders, a vice-president of the society was in the chair. A brief statement of the scope and workings of the society was made by the secretary, Dr. Joseph McFarland, after which the speaker of the evening, Dr. James Carroll, of the United States Army, and a former member of the commission appointed by the Surgeon-General of the United States to investigate yellow fever at Havana, Cuba, made an address upon "The Etiology of Yellow Fever." Dr. Carroll reviewed in an interesting manner the early researches upon the etiology of the disease, giving special consideration to the work of Fraire, Sanarelli and Finlay, then reviewed the work of the commission whose researches have now become world-wide, and resulted in the proof that we have no reason to believe that yellow fever is propagated by any other means than the bites of the mosquito known as *Stegomyia fasciata*. It is only the female mosquito that bites, therefore, only the female mosquito that becomes infected. The mosquito is able to impart the disease only after twelve days have elapsed since its own infection, and may retain the ability to infect after many months, providing it does not meet with destruction in the meantime. A description of the experiments made to show the infectiousness of fomites, seemed to exclude all possibility of yellow fever being transmitted directly. It was with pleasure that the speaker reported that confirmation of all of the work of the United States Commission had been given by the more recently appointed French Commission.

#### CHICAGO.

**New Medical Journal.**—The first issue of the *Journal of Infectious Diseases*, the new scientific publication endowed by Mr. and Mrs. Harold F. McCormick, has made its appearance. The journal has been established in connection with the Memorial Institute for Infectious Diseases, founded by Mr. and Mrs. McCormick in memory of their son, Jack Rockefeller McCormick, who died of scarlet fever. The new magazine is devoted to the publication of original investigations dealing with the general phenomena, causes, and prevention of infectious diseases, both of known and unknown origin. It is to be published at irregular intervals, as rapidly as the amount of available scientific reports permits. The publication costs some \$15

a year; it is estimated that the endowment is about \$375,000. The first number of the journal contains eleven articles by bacteriologists and pathologists at the Universities of Michigan, Minnesota, and Chicago, from the Massachusetts Institute of Technology, and from the Government Laboratory at Manila. The editors of the journal are Dr. Ludwig Hektoen, and Dr. Edwin O. Jordan, of the University of Chicago. Dr. Frank Billings is associate editor.

**Effects of the One Delivery a Day of Milk to Consumers.**—The Bulletin of the Health Department has this to say relative to the effects of one delivery a day of milk to consumers, which contributed to maintain the high death rate. The disastrous effects on child-life, threatened by the barbarous action of the Milk Wagon Drivers in refusing to make more than one delivery of milk a day, were largely overcome by the relatively cold weather of the summer by unusual effort in milk inspection, including the employment of an emergency corps of inspectors, known as milk scouts, and by an enormous development of the sterilized milk service fostered by the Woman's Club and Hospital Association. As a matter of record, the mortality of infants and young children during 1903 was lower than ever before known—8.8 per cent. less than in 1902, 9.4 per cent. less than in 1901, and 57 per cent. less than the average of the period between the two census years, 1890 and 1900. In 1891 the deaths of children under five years of age numbered 110.38 in every ten thousand of population; in 1903 they were only 41.7.

**Mortality for 1903.**—The total deaths for 1903 will number 28,940, including the 587 deaths from the Iroquois Theatre disaster, instead of the 28,353 given in the statement of mortality for the year. This will increase the death rate from 15.04 to 15.35 per one thousand. Deaths from violence were already more than 12 per cent. in excess of the average for the period since the census year 1900; but these 587 theatre deaths swell the excess to 41.5 per cent. over the yearly average of violent deaths. Even with this addition to the total mortality, the death rate is 6 per cent. lower than the yearly average since 1892, although it is 8.2 per cent. higher than that of 1901, and 5.3 per cent. higher than that of 1902.

**New Training School for Nurses.**—It is stated on good authority that the Cook County Hospital will soon establish a training school for its own nurses.

**Resident Medical Director.**—Dr. P. Maxwell Foshay, of Cleveland, Ohio, intends to locate in Chicago early in April, and will be the resident medical director of the Mutual Life Insurance Co., of New York, which has recently been opened here.

#### CANADA.

**Smallpox in Cape Breton.**—The smallpox situation throughout the island and county of Cape Breton is becoming very acute and the local health authorities are somewhat puzzled as to what action they shall take to prevent an epidemic of the disease. In several districts of the county the disease has already reached that stage and grave fears are entertained lest it should secure a footing in Sydney. At several places the railway stations have been closed for several weeks.

**Appointment.**—Dr. W. F. Langrill, Hamilton, Ont., who has been Medical Health Officer of that city for some years, has been appointed medical superintendent of the Hamilton General Hospital, to succeed Dr. McLaren. The salary is \$1,800 per annum, and there were a large number of applicants for the position from local and outside physicians. The Governors of the Hamilton General Hospital have decided to co-operate with the Toronto General Hospital in their

endeavor to get the Ontario Government to increase the amount of the grants to the various hospitals of the province.

**Dental Course to be Established at McGill University.**—At a regular meeting of the corporation of McGill University recently, it was decided to establish a dental department in connection with the Faculty of Medicine. With this object in view certain of the professors of the existing dental college of the province of Quebec, at present not more than three in number, who are not members of the teaching staffs of other universities will be appointed by the governors, professors in subjects in the dental department of the Faculty of Medicine. It will be the rule also that all professors of the Dental Department shall together form the executive of the Dental Department, of which also the Dean of the Medical Faculty shall be ex-officio, chairman. The course of study shall be determined by the Executive of the Dental Department subject to the approval of the Faculty of Medicine. The University shall confer upon students who have completed the required course, and who have passed the required examinations, the degree of master in dental surgery (M.D.S.). Not less than one year after graduation as master in dental surgery, the degree of doctor in dental science (D.D.S.) shall be conferred upon such graduates as have either: (a) Presented at any time later than one year after graduation a satisfactory thesis, embodying original research, upon some branch of dental science, or (b) have at the completion of three years, passed satisfactorily an examination in advanced dentistry, the scope of which shall be determined by the Faculty of Medicine.

**Laboratory for Queen's University, Kingston.**—Queen's Medical Faculty have asked the Ontario Government to establish in that city a branch laboratory in connection with the Board of Health, for the examination of pathological specimens. Such a laboratory would be an immense benefit to Eastern Ontario. For instance, in order to get specimens tested free of charge, physicians in the east part of the Province of Ontario, have to send them to Toronto, where the Government laboratory is situated. If a branch were established in Kingston, the results would be secured much quicker. It is stated that this branch laboratory has almost become a necessity, and there is no doubt but what the Government will accede to the request of Queen's. It would be likely under the direction of Dr. W. T. Connell, professor of bacteriology and pathology in Queen's.

**Some Interesting Observations on Life Insurance.**—Dr. Andrew MacPhail, of Montreal, has been making interesting observations and investigations as to the liability to earlier death of persons rejected by insurance companies, as compared with the liability of those accepted. He took note of 5,115 applications, of which 409 were rejected cases, and then followed up so far as he could, the after record of the rejects. He traced 235 of them, of whom during fifteen years only 31 died, while according to insurance actuarial figures, had the 235 been "sound lives," no less than 25 should have died in that period. Dr. MacPhail's conclusions are that those who are rejected by insurance companies, as a rule, manage to live about the usual average. One reason for this may be that in consequence of life insurance rejection, an ordinarily steady man takes special care of himself.

**Sanatorium By-Law Carried.**—At the Toronto municipal elections, which were held in that city, Jan. 1, a by-law to raise \$50,000 for the establishment of a municipal consumption sanatorium, was submitted to the rate-payers, the vote standing: For, 4,071; against, 3,822. This is somewhat significant, as all of the local papers opposed the passage of any such by-law, in view

of the great and good work which had been accomplished by the National Sanitarium Association.

**The Prevention of Tuberculosis in Montreal.**—

The Montreal League for the Prevention of Tuberculosis is issuing an appeal for funds to enable it to carry on the war against consumption in that city. The League needs money now to establish free consulting rooms and intends as soon as possible to erect a sanatorium on Trembling Mountain near the city, at which place the Provincial Government has made a grant of land for the purpose. The aims of this League are intensely practical, as they are dealing with every reported case. The League is under the patronage of the Governor-General, Lord Strathcona, Sir Louis Jette and Sir Wm. Macdonald, while the Hon. Senator Drummond is the President.

**Typhoid Fever Epidemic in the Suburbs of Montreal.**—There are now about 600 known cases of typhoid fever in the suburbs of Montreal, in Westmount, St. Henri and St. Louis. The hospitals of Montreal are obliged to refuse any more patients suffering with the disease. At the Royal Victoria there are 40 cases; at the Western, 6 cases; there are 15 in the Homeopathic Hospital; at Notre Dame, 13 cases; at the Hotel Dieu, 20 cases; at the General Hospital, 28. The one thing which these municipalities have in common which is not shared in by the City of Montreal proper, is the water supply. During the last two years the character of this water was severely assailed, but not the water alone, but the milk supply is being subjected to exhaustive and detailed examination. The municipality of St. Henri has requested the provincial Board of Health to make an analysis of the water and the result is awaited with a great degree of interest, as the Power Company which supplies the water, claims that it is not at fault.

#### GENERAL.

**Berlin Hospital.**—Berlin is to have a new municipal hospital with 1,700 beds. It will cost over \$2,000,000.

**British Journal of Children's Diseases.**—This is the title of a new journal to be edited by Dr. George Carpenter in London. The first number appears in January, 1904. As European editor for *Pediatrics*, Dr. Carpenter has built up in this country, through this widely circulated journal, a host of well wishers. We cordially hope for the new venture, the only one of its kind in Great Britain, a glorious success.

**Malaria in Istria.**—The Austrian Government has undertaken to exterminate malaria on the coast of Istria. Several stations have been established at which quinine is furnished free, and patients are carefully screened so as to prevent mosquitos from spreading the infection.

**Prize for Dr. Schleich.**—Prof. Karl Schleich of Berlin has received from the University of Würzburg a medal and a 1,000-mark prize for the discovery of the Scheich method of making surgical operations painless.

**First French Congress of Climatotherapy.**—This congress will be held at Nice, during the Easter vacation, from April 4 to 9, 1904. Professor Chantemesse has been named president; the vice-presidents are: Professor Renaut, Lyon; Professor Grasset, Montpellier; Professor Calmette, Lille; Dr. Balestre, Nice. The discussions will bear on five questions: The climate of the French Mediterranean coast; reporting secretary, Dr. Chiaia, Mentone. Adaptation of the individual to climate; reporting secretary, Dr. Manquat, Nice. Influence of the French Mediterranean coast climate on tuberculosis and tuberculous patients. The influence of climate on the French,

Mediterranean coast on rheumatism and on those subject to rheumatism; reporting secretary, Dr. Moriez, Nice. Disinfection of towns; reporting secretary, Dr. Balestre, Dr. Camous, Nice. For particulars write to Dr. Hérar de Bessé, Secretary General of the Congress, Beaulieu-sur-Mer.

#### OBITUARY.

Dr. EDWARD A. EVERITT died at his home in Burlington, Pa., Nov. 22, 1903, of angina pectoris; he was born August 11, 1831 in New York State. He attended lectures at Ann Arbor, Mich., and Albany Medical College, where he was graduated with the class of 1856. Dr. Everitt was a member of the Bradford Co. Medical Society and had been a resident of Burlington, Pa., many years.

Dr. JAMES FERGUSON, proprietor of the Central Valley Sanitarium died last week at that institution. He was sixty-two years old and unmarried. He had conducted his widely known institution twenty years.

Dr. HENRY A. CHORS, thirty-seven years old, was found dead in bed in his room at 108 Concord Street, Brooklyn, last week. Heart trouble is supposed to have been the cause of his death.

Dr. CORNELIUS E. BILLINGTON, for many years a practicing physician in New York City, and the author of "Diphtheria and Its Treatment," died at his home, 85 Madison Avenue, on Friday from a complication of diseases. He was the son of Linus Billington, a Presbyterian minister, and was about 60 years old and single.

Dr. CHARLES G. FROWERT, one of the best known physicians of Philadelphia, died suddenly last Saturday. He was born in Philadelphia in 1850.

Dr. FRANK W. SHAW, thirty-eight years old, of 327 Greene Avenue, Brooklyn, died in the Seney Hospital, that borough, last week. Dr. Shaw was a native of Lockport, N. Y., and a graduate of the College of Physicians and Surgeons of New York of the class of 1889. For two years he was one of the staff of the Presbyterian Hospital. He was a member of the Kings County Medical Society and assisting visiting physician to the Seney Hospital.

Dr. GEORGE H. HACKENBURG, a noted scientific man, who is credited generally with being the originator of the telephone idea, died, at his home in Austin, Tex., on Friday night. He was eighty years old. In 1864 he wrote an article which was published in *Godey's Lady's Book*, making public his ideas of the principles of the telephone, which were afterward practically applied by others. The article attracted wide attention. He was at that time living in Ohio. He was born in Union County, Pa., and was a graduate of the Medical College of New York University. He practised medicine in New York State for several years and was a frequent contributor to magazines on scientific subjects. He moved to Texas in 1873.

Dr. STUART H. REED died Jan. 6 from pleuro-pneumonia, after a brief illness. He was born in South Carolina, Oct. 10, 1854, and was the son of the Rev. Edward Reed. When twelve years old he located at Cocksackie, N. Y., with his uncle, Alexander Reed. In 1874 he was graduated from Claversack Seminary of Columbia County, N. Y., and was graduated from Williams College, Williamstown, Mass., in 1878. In 1881 he was graduated from the College of Physicians and Surgeons of New York City. In September, 1882, Dr. Reed came to Madison, and was a member of the Board of Chosen Freeholders for Chatham Township. He was elected a member of the first Board of Councilmen, and served several years on the Board of Education. He was an active member of the Morris County Med-

ical Society. He also served for a number of years as physician for the Board of Health of Chatham Township, and was at his death a member of the Commission of Appeals.

Dr. WILLIAM H. IRELAND died at his home, 330 Cooper Street, Camden, N. J., last Tuesday morning, aged sixty years. He was one of the oldest practitioners in Camden, and at one time served as County Physician for three years. He was born at May's Landing, and graduated from the University of Pennsylvania in 1867. He had been President of the County and City Municipal Societies, and a life delegate to the State Medical Society from the County Society. He was connected with various college societies, including the Alumni of Pennsylvania University.

#### SPECIAL ARTICLES.

##### HARMONY IN THE STATE.

NEW YORK, January 12, 1904.

THE Subcommittee of the Joint Committee on Conference presents the following plan of consolidation of the Medical Society of the State of New York and The New York State Medical Association for the information of the medical profession of this State.

The plan is the result of much labor, legal investigation, and careful thought and attention on the part of the Committee; and the organization recommended for the consolidated corporation is one which is now in successful operation in thirty-two States of the United States. It is based upon the form of government of the United States, and care has been taken not to interfere in any way with the autonomy of county organizations, or with their property or other vested rights.

We respectfully urge the members of the profession to promote by all proper means the passage by the legislature of the proposed act prepared by counsel for the Committee, authorizing the consolidation of the Medical Society of the State of New York and The New York State Medical Association. The proposed Act will be introduced in the Assembly or Senate in due course, and, if passed, will authorize the consolidation upon terms to be agreed upon by the two corporations. The consolidated corporations will be known as the Medical Society of the State of New York.

Before the agreement for consolidation under the proposed Act will become operative or effective for any purpose, it must be authorized or ratified by the vote of each corporation at an annual meeting, or else at a special meeting of each corporation called to vote upon the agreement, and it must also be approved by the County Medical societies in affiliation with the Medical Society of the State of New York.

The agreement to be recommended by the Committee for adoption in accordance with the terms of the Act will contain provisions for giving effect to the following stipulations:

1. All assets and liabilities of The New York State Medical Association shall be transferred to and vested in and assumed by the Medical Society of the State of New York at the time of consolidation.
2. Expert accountants shall be employed to ascertain the assets and liabilities of each corporation, and their reports shall be submitted with the agreement for consolidation.
3. All members of The New York State Medical

Association in good standing at the time of the consolidation shall be admitted to membership in the Medical Society of the State of New York.

4. All members in good standing of the County medical societies now in affiliation with the Medical Society of the State of New York shall be admitted to membership in the Medical Society of the State of New York.

5. All members in good standing of The New York State Medical Association shall be admitted to membership in the County medical societies for the counties in which they respectively reside.

6. All members in good standing of the Medical Society of the State of New York shall be admitted to membership in the County medical societies for the counties in which they respectively reside.

7. The plan of organization, constitution and by-laws of The New York State Medical Association, with such modifications as have been agreed upon by the Committee, shall be adopted as the plan of organization, constitution and by-laws of the Medical Society of the State of New York.

8. The following proposition shall be submitted by referendum to the vote of the members of the consolidated corporation, namely:

"The principles of medical ethics of the American Medical Association, being suggestive and advisory, shall be the guide of members in their relations to each other and to the public."

9. The Medical Society of the State of New York will petition the legislature for the passage of such further enabling act as may be necessary, if any, to carry the consolidation agreement into effect.\*

#### AN ACT

TO AUTHORIZE THE CONSOLIDATION OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK AND THE NEW YORK STATE MEDICAL ASSOCIATION.

*The People of the State of New York, represented in Senate and Assembly, do enact as follows:*

Section 1. The Medical Society of the State of New York, incorporated by or pursuant to chapter one hundred and thirty-eight of the laws of eighteen hundred and six, entitled "An act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this state," and continued by chapter ninety-four of the revised laws of eighteen hundred and thirteen, passed April tenth, eighteen hundred and thirteen, entitled, "An act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this state," and The New York State Medical Association, incorporated under chapter four hundred and fifty-two of the laws of nineteen hundred, may enter into an agreement for the consolidation of such corporations, setting forth the terms and conditions of the consolidation and the mode of carrying the same into effect.

Each corporation, party to the agreement, may petition the Supreme Court for an order consolidating the corporations, setting forth in such petition the agreement for consolidation and a statement of all its property and liabilities and the amount and sources of its annual income. Before the presentation of the petition to the court, the agreement must be approved by a majority of the vote lawfully cast at an annual meeting of each corporation, separately, or at a meeting of each corporation separately and specially called pursuant to its by-laws for that purpose, and a certificate of such approval, verified by the president and secretary of the meeting shall be annexed to the petition.

On presentation of the petition, the certificate of ap-

proval, and the consolidation agreement, and on such notice to interested parties as the court may prescribe, and after hearing such interested parties as desire to be heard, the court may make an order for the consolidation of the corporations on such terms and conditions as it may prescribe.

When the order is made and duly entered, the corporations, parties to the agreement, shall be one corporation under the name "Medical Society of the State of New York," which shall not be deemed to be a new corporation, but to be a continuation of the Medical Society of the State of New York, incorporated in eighteen hundred and six. A certified copy of said order shall be filed in the office of the Secretary of State. All the property belonging to the corporations so consolidated shall vest in the said Medical Society of the State of New York, which shall have all the powers, rights and privileges possessed by either corporation at or immediately prior to the consolidation, and which shall be subject to all of the liabilities of each corporation.

§ 2. This Act shall take effect immediately.

Respectfully submitted,

A. JACOB,  
GEORGE RYERSON FOWLER,  
E. ELIOT HARRIS.

#### A PLEA FOR UNIFICATION AND UNIFORM ORGANIZATION.

BY J. M. MCCORMACK, M.D.,

OF BOWLING GREEN, KY.;

CHAIRMAN OF THE COMMITTEE ON ORGANIZATION OF THE AMERICAN MEDICAL ASSOCIATION.

*To the Medical Profession of the State of New York:*

AFTER correspondence on the subject with members of the Joint Conference Committee, and others, more especially on the Society side, I have been requested, as chairman of the committee which has had this work in charge from its inception, to prepare for publication an explanation of the plan of organization for state and county societies which has been so generally adopted in the last two or three years. As the plan was prepared and is recommended for universal adoption, is already in satisfactory operation in 32 states and in over 1,500 counties, and is likely to be adopted in nearly all of the other states as soon as their annual meetings occur, as the subject is one of interest at this time to every member and well wisher of our profession, and, more especially, as the preparation of the plan for general adoption, makes my committee as responsible to you for anything wrong in it as though we were members of your county and state societies, it seems entirely proper that the request should be complied with, and an attempt will be made to place beyond question the truth of the following propositions:

1. That existing professional conditions and estrangements are useless and senseless, that they are hurtful almost beyond calculation to both the profession and the public welfare, and that they are remediable.

2. That the plan of organization is based upon our system of civil government, that it was prepared with much care and unselfishness, and that it contains nothing untried, experimental or impracticable.

3. That the county society is not only the unit of the organization, but the source of all authority and power in both the state and national bodies through a representative delegate system, and it is also the only portal of entry to the entire society system.

4. That coincident membership has been an old and

\* This bill has just been introduced.

perfectly satisfactory method in many states, is essential to complete organization, and that it is just and right. It would be as unfair to permit a physician to become a member of his county society and enjoy all the benefits arising from the labors of the state society, as to permit one to become a citizen of Ithaca or Troy, without becoming a citizen of the State of New York and bearing the burdens and responsibilities of the same.

5. That amendment of any part of the plan is purposely made easy and is controlled by delegates from, and responsible alone to, the county societies.

6. That the time has come for unification, and that, while union under a defective plan, which the joint body could modify and improve for the common good, would be far preferable to a continuation of existing conditions, the one now proposed has been found excellent and practical after full trial in other states, and, having been prepared away from New York contentions and controversies, it offers a basis for compromise honorable alike to both factions and to neutrals.

In order to establish these propositions clearly and satisfactorily, a brief history of this reorganization movement is necessary. From the very outset the magnitude of our task grew upon us. Although in name medical societies—city, district, state and national—existed without number, and medical machinery and high-sounding official titles were provided sufficient for the civilized world, membership in most of them was small and little more than nominal, and, outside of a few states and localities, the profession was so torn with dissensions that it was in chronic disgrace in its own and the public estimation, and in a large measure robbed of its power, by legislation or otherwise, to help either itself or the public, for whose benefit it was supposed to exist. Into a profession already so overcrowded that there was less room and remuneration for the average man than for clerks and skilled laborers, commercial medical colleges were annually turning loose thousands of new graduates, many poorly equipped for intelligent modern practice, and all of them without an hour's training in professional conduct, business methods, or the importance of society membership, in which all should have been drilled with the care due to subjects to become of so much importance as soon as they come to serve the public, and face the problem of earning an honorable livelihood.

As a result, largely, of such lack of training, we found that of the 120,000 registered physicians in this country, only about 30,000, one in four, had ever been members of any kind of society, local, state or national. Most cities were little better organized than the country districts, a large submerged element being often found within an easy walk of imposing medical and post-graduate schools, libraries and hospitals, who had long lost hope of advancement, looked upon their profession only as a doubtful means of support, while those in the higher ranks wrangled and slandered one another, and brought odium on all, and Christian Science and other forms of bald, naked quackery, took the cream of a patronage which a united, self-respecting and honored profession would have deserved and received.

It was soon found, however, that these conditions, deplorable alike to the profession and public, were not universal. In Alabama, for instance, under a model plan of organization there resulted a united profession, with over 1,500 of the 1,700 physicians members of the county and state societies. Medical opinion was sought for the guidance of law-makers, executives and courts, the profession was honored and independent, and quackery was unknown. Kentucky, striving for the same ends under less perfect methods, had had no itinerant or advertising doctor within her borders for ten

years, and the profession was aspiring to its rightful place as a directing force in public affairs. In a dozen cities also, usually of the lesser rank in population, under similar influences, harmony, co-operation, and measurable prosperity prevailed, and was increasing.

Inquiry soon demonstrated that the personnel of the profession was much the same everywhere, and the difference in the conditions found were apparently entirely due to difference in methods of organization. After all proper allowance for personal equation in rulers, governments are liberal or despotic as determined by their organic laws, and, probably quite as much as with a nation, the constitution and by-laws of a medical society will set the compass and shape the policy which will largely determine the future for both itself and its individual members.

Influenced by such belief and considerations, my committee began its work four years ago by grouping these provisions for state and local societies which had resulted in the most effective organizations, and with great care made our first draft of a constitution and by-laws for submission to, and discussion by, conferences of leading men in the various medical centers where there was a reasonable degree of harmony. Later the improved draft was published in the medical press and in pamphlet form and given the widest possible publicity. As we were performing an important, unselfish and gratuitous public service for the common good, advice and frank criticism were cordially asked from all, and these came freely and helpfully, especially from the better organized states and cities.

With such assistance, and in the light of such criticism, keeping always in mind that the plan should be democratic and conform to our methods of civil government, with local self-government by the county societies as the central idea, a simple but comprehensive system was gradually evolved, almost ideal in its outline and possibilities, which, after full trial under the most diverse professional conditions, has proven entirely practical. It is so flexible that it can be as easily adapted to the Cook County Medical Society at Chicago, with 1,800 members, as to sparsely settled counties in North Carolina or California with ten members. Under its operations in one year in Michigan the membership increased from 560 to 2,100; in Kentucky from 390 to 1,600; in Tennessee, from 300 to over 1,000; in Missouri, from 400 to 1,500; in Arkansas, from 190 to 703, and in like proportion in every other state adopting it.

It is a thoroughly democratic and American plan, using these much abused terms in their broadest and best sense. As has been said, the county society is made the broad foundation and source of authority for everything, as well as the portal of entry to both the state and national bodies. If a physician stands well enough at home to secure membership in his county society, he is eligible for membership and for any position of honor or trust in the state and national bodies, and, if he loses membership at home, subject to the right of appeal, he loses out everywhere.

The house of delegates, the legislative and business body of the State Society, like the general assembly of a state, is composed of representatives from the county and district societies, and such delegates are freed from political influence so far as possible by making them ineligible for any of the offices within their gift, and they are responsible alone to the constituencies electing them. As they are in session but two or three days, in order to make the transaction of any business possible, unlike senators and representatives, they sit as one body. This gives a body small enough for deliberative work, and yet gives county societies remote from the place of meeting, and all others, an equal and

only an equal, voice in all business affairs, if only the delegates are in attendance.

Carrying out the same principle of local self-government, this house of delegates, made up directly from county and district societies, elects from the general membership the delegates who, in turn, compose the legislative body of the American Medical Association. As in the house of delegates of State societies, this being a small body, with its members carefully selected and made ineligible for any other position, with the terms of half the members expiring each year, so as always to have men of experience in it, and which can remain in session, if necessary, after the general meeting adjourns, it was hoped to provide a body in which the interest of the profession and of scientific medicines might be considered and promoted in the broadest way.

The question of coincident membership in county and state societies is one which should require little explanation in New York. It has given satisfaction in the association, and has, of course, been under the observation of the society people. You have also had ample opportunity to observe the results of it in the neighboring States of New Jersey and Connecticut, where it has been in operation for years. It has been long the practice in Alabama, with the result that about 90 per cent. of the profession are permanent members, as well as in Massachusetts, Pennsylvania and Indiana, and recently in a total of thirty-two States. It is only one feature of the work, but it is so important that any complete or systematic organization of the profession is impossible without it. Besides, the justice of it is beyond question. It would be as obviously unfair to permit one to join his county society and enjoy all the benefits of the State society, arising from its legislative, educational, and other expensive and responsible labors, without assisting in its support, as it would be to permit a man, if one could be found so foolish and selfish as to ask it, to become a citizen of Buffalo, Syracuse or Rochester, and enjoy all the benefits and protection of the state government, without becoming a citizen of New York.

It is true that in nearly every state where this plan of organization has been proposed, as was natural and to be expected, academic and purely theoretical objections have been made to some feature of it, usually to the council, the house of delegates, or to coincident membership. Such objection has always been made in advance of a trial of them, and they have been confined almost entirely to States which have been practically without organization heretofore. Conditions in Iowa illustrate this point well. The county society at Dubuque, which has reorganized and applied for a charter within the last ten days, raised many such theoretical objections to the plan before they had tried it, while 88 counties in the same state, organized under it, and realizing its practical benefits, are loud in praise of the very provisions to which their worthy neighbor at first objected. It is a source of much encouragement that this has been the experience of over 1,500 counties which have reorganized.

It would be pleasant to comment on each provision of the plan in detail if space permitted. Suffice to say that it was intended only as the foundation and frame work for a broad and comprehensive system to be recommended for universal adoption, that nothing was included except for what appeared the best of reasons, and that it is susceptible of infinite elaboration and improvement in detail as the profession of any state or county develops under the catholic and cooperative spirit which it inculcates, and which is so much to be desired.

Attention is called to the fact also, that much contained in the by-laws, where a wide departure is made from the brevity and compactness of expression adhered to in the constitution, is suggestive and educational in character, much of which would not be necessary if such an organization as-is contemplated was already in existence. We thought it as important, under existing conditions of discord and demoralization, to furnish incentives to this work, to give practical and detailed information as to how it was to be done, and to put the reasons for it all within easy reach of those whose duty it would be to discuss the subject and do the work as to furnish the framework of which, as the result of years of devoted labor, they were to make a complete edifice occupied by a united and harmonious, or at least a decently cooperative and self-respecting profession. For many reasons, too, amendment to the plan is purposely made easy. If after trial in any state anything is found obsolete or impracticable, it can be easily eliminated or replaced by something better adapted to existing needs, by the house of delegates, subject to instruction from the county societies, at any regular meeting, after such amendment has lain upon the table for one day.

Unification in New York has been so long the dream and hope of its own profession, as well as of the entire country, that now, when this seems about to be realized, it may be that a majority of you will consider mere methods and details of organization important only in so far as they are likely to hasten or delay the union. In part, this view of the matter is both natural and correct. A cordial union under a defective plan, which could be modified and improved to meet the needs of the joint body, when there would be unity of purpose and interest for the common good, would certainly be far better than to perpetuate the two bodies, even with model organizations for both, with the strife, discord and loss of public respect inseparable from such conditions anywhere.

Still, if it can be shown, as the writer believes will appear upon the most critical investigation of what is now proposed, that it furnishes ready to your hands a plan of organization to which you may build and add with confidence in the results, and which will at the same time hasten unification by furnishing a basis of compromise between factions so long divided that suspicion and jealousy have become so much mental habits that neither will be willing to accept what the other proposes, it should, and I am sure will, receive respectful consideration at your hands.

In the era of good feeling and enthusiasm which must follow unification, under such a broad, liberal and comprehensive plan, which would give an equal voice and power to the individual doctor in every county, organization should and would make rapid strides, and the possibilities opened up to your profession, and then to your people, would be almost beyond conception. In the face of such possibilities, standing upon the threshold of such accomplishments, petty prejudices and personal interests appear so insignificant that they should find no place in large minds.

Then, as New York would be in perfect alignment with her sister States, with proper education and effort, everything desirable would, in time, be brought within reach of the united profession of the entire Union. The complex and difficult problems before the profession of this country incident to our unprecedented advance in population and civilization, and which must be solved by it, if they are to be solved, will tax its highest intelligence and energies at its best. Provision can then be made for continuous scientific research, and for systematic collective investigation into the causes and prevention of diseases, upon the large, generous lines de-

manded by the vast interests involved. The vexed problem of medical education can then be taken up with confidence and justly and wisely solved. Reciprocity in licensure and membership between states can then be discussed from the standpoint of the common good and settled upon some equitable basis. Constructive statesmanship can be substituted for the narrow, time-serving political methods of the present in municipal, state and national public health affairs, and our great profession, great even now in spite of its divisions, united, elevated and ennobled, would come to occupy its rightful place as one of the greatest of modern forces for the guidance and protection of our people. It would be an honor, even to New York, to lead in a reform promising such results, and to set an example in complete organization, which less favored and weaker States would imitate with both pride and profit. First of all, leading to all and above all, in the words of your victorious commander, greater in unanimity even than in war, "Let us have peace."

## CORRESPONDENCE.

### OUR LONDON LETTER.

(From Our Own Special Correspondent.)

LONDON, December 19, 1903.

HERBERT SPENCER—MEDICAL EDUCATION IN LONDON—THE ORIGIN OF CANCER—THE SERUM TREATMENT OF TUBERCULOSIS AND MALIGNANT DISEASE—DOCTORS IN PARLIAMENT.

HERBERT SPENCER, whose remains were cremated at Hampstead a few days ago, taught the world more by his life than by his philosophy. In spite of the indifference of a public which cared for none of the things he had to say, ill health, which made intellectual work at all times difficult and often impossible, and limited means, he struggled against adverse circumstances and finished the gigantic task to which he had given his life. His endeavor was the noblest that could animate a man, and it is a pathetic illustration of the futility of so large a part of human effort that his work was in great measure a failure. It may indeed be said that his philosophy died before himself. This is the usual fate of systems. Huxley put his finger on Spencer's weakness when he said that if the author of *Synthetic Philosophy* wrote a play the catastrophe would be the killing of a large induction by a fact. Spencer was an intellectual force of the first order, but his strong individualism led him in more than one direction into the company of "cranks." His utterances on medical matters betrayed a distinctly hostile bias which was difficult to reconcile with his general attitude toward science. He advocated free trade in the practice of medicine and seemingly had persuaded himself that the enforcement of regulations against certain infectious diseases was an unwarrantable interference by the State and a form of protection that could find no excuse in the eyes of political philosophy. But it was not only from this point of view that he condemned vaccination. In his very last book, *Facts and Fallacies*, published two or three years ago, he revealed himself as an "anti-vack" (*sit venia verbo*—it is Jenner's own) of the most virulent type. If he does not in good set terms denounce vaccination as responsible for cancer, consumption and many other diseases, he hints that by producing some mysterious change in the constitution it may lead to all kinds of mischief. He had evidently not studied the matter seriously, or his study had been singularly fruitless. In any case the fact that he should have written such nonsense on a subject as to which easily verifiable facts lay close to his hand scarcely en-

courages us *jurare in verba magistri* when he is dealing with more recondite things. The medical profession itself he looked upon with jealousy, if not dislike, as a close corporation, still retaining much of its primitive priestly and occult character. But with all his prejudices and limitations he was a man who, according to any right estimate of values, was the chiefest glory of his country. To our shame be it said, the vast majority of his countrymen knew little and cared nothing about the great philosopher. On the day the announcement of his death appeared on the bills of the newspapers, a porter at Charing Cross Station was heard to ask his mate "Who's this 'ere Spencer wot's dead?" The answer was "Why 'e's the man wot 'ad the balloon at the Crystal Palace!" The London correspondent of *Le Journal des Débats* relates that he was not long ago in company with some Englishmen and foreigners. The conversation turned on great men, and one of the Englishmen bewailed the fact that his country at the present time had none. One of the foreigners pointed out that she had at least two—a great philosopher and a benefactor of mankind who could stand comparison with Pasteur. The Englishman, evidently much surprised, asked who they were; and he did not seem to be greatly enlightened when he was informed that they were Herbert Spencer and Lister. I remember when Lord Lister was made a peer of the realm, hearing that one of the so-called leaders of Society, *une grande dame de par le monde*, as Brantôme would have called her, on seeing the announcement in the list of honors, asked who on earth the man was, and what he had done to entitle him to such a distinction! In this enlightened country, unless a man is a politician, an athlete or an actor, he need not expect that his name will be familiar in men's mouths as a household word. W. G. Grace, the cricketer—himself, by the way, a member of the medical profession—is far more famous than any man of science or letters in the kingdom.

An appeal has just been issued by the Senate of the University of London for funds to build and endow an Institute of Medical Sciences under the control of the University. Among the signatories are Lord Rosebery, the Chancellor of the University, Dr. Pye-Smith, Consulting Physician to Guy's Hospital, Vice-Chancellor, and Mr. H. T. Butlin, formerly surgeon to St. Bartholomew's Hospital, Dean of the Faculty of Medicine. The function of the Institute is to be the teaching of physics, chemistry, biology, anatomy and physiology—in a word, it is proposed to centralize the teaching of the sciences that form the foundations of scientific medicine. At present these subjects are taught in each of the eleven schools attached to metropolitan hospitals—a system that obviously makes for inefficiency. The necessity of concentrating the teaching of the subjects mentioned in one or two large institutions was strongly urged by Huxley more than thirty years ago, but the rivalries of the schools have up to the present time prevented the accomplishment of the reform. Now several of the hospital schools are on the verge of bankruptcy owing to the expenditure required for laboratories, apparatus and practical teaching. In order to keep them going subventions have to be made from the hospital funds. This gives an opening for attacks by the antivivisectionists who call on the public, not to subscribe to hospitals whose funds are used for the "torture" of animals. It is to be hoped that the money will be obtained, but I fear it will be difficult to persuade the British public to contribute toward the cost of medical education. It would be useless to ask help from the Government, which has the fear of the voter ever before its eyes.

Reference was made in my last letter to a remarkable

paper on the structure of the cells in Malignant Growths, which was read before the Royal Society last week by Professor Farmer, Mr. Moore and Mr. C. E. Walker, all of the Royal College of Science. Owing to the stringent rules of the Royal Society as to publication, it was impossible then to obtain even the briefest outline of the paper. The following abstract, made by one of the authors and revised by the others has since appeared in *The Times* (December 14) a paper which is privileged to be chosen by the officials of the Royal Society as the medium of publication of the communications which they consider to be specially important. As the paper has not been published elsewhere, the following summary of the work of Farmer, Moore and Walker may be interesting. Their investigations, it is claimed, have revealed a striking resemblance between the formation of sexual reproductive tissue and that of those abnormal growths in the higher animals which possess the property of invading and destroying the surrounding tissues of the body. These growths or tumors are, when occurring in man, known as "malignant," and include carcinomata (cancer) and sarcomata. The authors have rejected the hypotheses as to a parasitic origin of the disease, and also the views advocated by Cohnheim, according to which the growths are due to awakening activity in nests of "embryonic tissue" abnormally persisting in the organism after the embryonic stages have been passed. The changes which occur in cells that are about to produce reproductive or germ cells are highly characteristic, differing very materially from the changes observed in cells which are producing, or destined to produce, the ordinary tissues of the body. These differences are specially noticeable in the mode in which the nuclei of the cells divide, its nucleus passes through a series of changes, of which one of the most remarkable is the appearance of a number of rod-like bodies known as chromosomes. The number of these chromosomes is constant in each species of animal and plant, and does not vary during subsequent divisions so long as only ordinary body tissue is produced. In reproductive (not "embryonic") tissues, however, the cells, at a certain stage, undergo a special and very characteristic form of division, in which the chromosomes present a different appearance, and reappear in only half the number proper to the species to which the particular organism belongs. The descendants of these cells retain the reduced number of chromosomes in subsequent divisions until they finally produce those germ cells to which they normally give rise. When two of these germ cells fuse, the resulting cell (fertilized egg) again gives rise to a new individual, the cells of which possess the normal number of chromosomes. The authors have identified, near the growing edges of malignant growths, cells which are quite similar to those occurring normally in reproductive tissue, and they regard the conversion of previously normal cells into tissue which has assumed the essential features of reproductive or germinal tissue as being the immediate cause of the malignancy of the new growth. It is to be particularly remarked that the authors describe the tissue as being germinal and not embryonic, for in the latter the nuclei do not possess a reduced number of chromosomes. Cells which thus originate (as germ cells) exhibit in the normal life history of an organism that independence of growth and parasitic mode of nutrition that distinguishes malignant growths. The changes indicated have not been observed by the authors in benign tumors or ordinary inflammatory tissues; hence it would seem that they may be used as diagnostic signs, differentiating malignant from benign tumors. Naturally, in the case of tissues thus produced, the further history of the cells continues along abnormal lines,

partly, no doubt, because of nutritional derangement. The causes that produce a germinal tissue from the normal cells of the body must doubtless be sought among physiological stimuli. Some of these are known to derange normal functions and to produce changes of form and structure. The authors believe that they are on the track of a method of what may be called physiological treatment that will prevent the development of malignant growths.

Marmorek's antituberculous serum, which has failed to find favor with the French Academy of Medicine, is being tried in St. George's and the Brompton Consumption Hospitals, by Dr. Arthur Latham, winner of the first prize offered by the Advisory Committee of the King's Sanatorium, for the best essay on the construction of sanatoria. He is to have the benefit of the personal advice of Dr. Marmorek who intends to visit London once a month to supervise the treatment. Dr. Marmorek was till lately on the staff of the Pasteur Institute, but the way in which he brought his serum to the notice of the public led to a protest on the part of his colleagues, and finally to his resignation. His serum has been tried by various well-known physicians and surgeons in Paris, with unsatisfactory results. Dr. Latham's report will be awaited with no very eager expectancy. It may be mentioned that his relative, Professor Latham, of Cambridge, two or three years ago undertook to investigate the effects of *Lachnanthes*, which is said to be the basis of a quack remedy largely advertised in this country. A preliminary report to the effect that no particular result had been observed was published some time ago. As far as I am aware no further report has yet appeared, and it is by no means unlikely that nothing more will be heard of the matter. At the Middlesex Hospital several cases of cancer are under treatment with a serum prepared by Dr. Otto Schmidt, of Cologne, with which he says he has completely cured some fifty cases. Of these at least three are known to have ended in death, and *post-mortem* examination proved that the cancer was not cured. The cases in the Middlesex Hospital were selected with the approval of Schmidt himself, but although they have been under treatment for more than a fortnight no appreciable effect has been produced.

Dr. Rutherford Harris, the first Secretary of the British South Africa Company, who has just been elected Member of Parliament for Dulwich, began life as a medical practitioner. He went to South Africa in search of health and there made the acquaintance of Cecil Rhodes who had a marked liking for doctors. Dr. Harris was for several years closely associated with Rhodes in his financial and political schemes. He will not count for much as a representative of medicine in the House of Commons, but the number of doctors in Parliament is so small that every addition to their ranks is welcome. The pity of it is that, few as they are, they cannot be got to act together in regard to legislation affecting the medical profession. An attempt has recently been made by the British Medical Association to induce them to form themselves into a Medical and Public Health Committee of the House of Commons. This might be a good thing in itself, but it is unlikely that the medical Members of Parliament will consent to act as delegates of the British Medical Association. It has been suggested that the Association should find doctors prepared to come forward as candidates for Parliament, should pay their election expenses and should provide an income for them while they sit in the House. It would be the business of these representatives to "assert the wants of the profession, in season and out of season." The Association might not have much difficulty in finding candidates, but it would not be so easy to find them

constituencies. As a political force, the medical profession in this country is a negligible quantity. This is perhaps not altogether to be regretted in view of the fatuous suggestion to which reference has been made. It is certain that if by any chance the British Medical Association were to succeed in getting a number of medical men who would be virtually its delegates returned to Parliament, they would speedily come to be regarded as intolerable bores. They would thus do the cause which they represented the worst possible service, for the House of Commons hates nothing so much as a bore.

## SOCIETY PROCEEDINGS.

### NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

*Stated Meeting, December 1, 1903.*

The President, Wm. Egbert Robertson, M.D., in the Chair.

**Observations on the Occurrence of Nephritis in Infancy.**—This was the paper read by Dr. Charles C. Baedert, in which he reviewed the work of Goulkewitch, who, in a post-mortem study of the kidneys of 200 infants, found nephritis in 23, the primary disease being pneumonia in 11, tuberculosis in 6, and enteritis in 6; Morse, who recommended the routine examination of infants' urine; Jacobi, who divided the disease in infancy into the acute, subacute and chronic forms, and considered the cause as either congestive or obstructive; Holt, and D. J. Milton Miller, who has devoted particular attention to the study of the influenzal nephritis. He recommended that the urine be examined for albumin in all doubtful cases, as many of the fatal cases of uremia are frequently unaccompanied by edema or dropsy. Among the causes of uremia were mentioned, scarlatina, diphtheria, measles, rubella, varicella, vaccinia, malaria, typhoid cerebrospinal fevers, tonsillitis, parotitis and pyemia, whooping cough, bronchopneumonia and the stasis dependent upon other pulmonary and cardiac affections. The primary form is very rare in infants. While albumin and hyaline casts are frequently present in the urine of infants, yet after the first week they should be given the same significance as in later life. He reported four cases, all following pneumonia, which, in two cases, was a sequel of whooping cough, in one it was a sequel of influenza and in the other a sequel of acute gastro-enteritis. The first cases occurred in a child aged five months; at the beginning of the attack, there was a temperature of 103° F.; pulse 125, and some vomiting and diarrhea, from which it recovered to a great extent in three or four days, but had a cough. Twelve days after the beginning of the first attack he was again seized with fever, temperature 104° F., cough and diarrhea and on the following day had two slight convulsions. Nine days later the physical signs of bronchopneumonia appeared, with a temperature of 104.4° F.; respirations 80, and a distinct swelling and puffiness of both feet. After this the temperature and pulse continued high, and the urine showed albumin and hyaline and granular casts and pus, the child dying on the thirtieth day, after the beginning of the first attack, after having had several hard convulsions, probably uremic. The second case was a male, four months old, and was first seen in the second week of the convulsive stage of whooping cough, with a temperature of 103.2° F.; pulse 130, and respirations 50. During the course of the disease, he had been crying and fretting with spasmodic coughing, followed by vomiting. After four days he developed symptoms of bronchopneumonia, and the urine was scanty, but

showed only a slight trace of albumin and no casts. He apparently improved and had a subnormal temperature for ten or twelve days, when a relapse occurred, with a temperature of 103.2°, with a return of the symptoms of bronchopneumonia, with albuminuria and numerous hyaline and granular casts and pus cells. The patient was markedly anemic and continued to grow worse until the fifty-third day of the disease, when he died. The third case was a female infant, seven months old, who was first seen with a temperature of 104° F., and a pulse of 150, and marked catarrhal symptoms indicating influenza, with moist râles, but no consolidation. Four days later bronchial breathing developed and patient continued in about same state for about a week more, when the bronchopneumonia symptoms still persisted, the patient was very pale, passed very little urine and a week later, albuminuria was present, but no distinct casts; convulsions developed in the meantime and the patient died four days later, on the twenty-fifth day of her illness. The autopsy showed areas of consolidation in both lungs posteriorly, congested spleen, enlarged and congested liver and red and congested kidneys. The fourth case was a male infant, aged four months, the illness beginning with high fever, diarrhea and vomiting, followed by extreme weakness and emaciation, and then improvement for a few days, after which he was taken with a high fever and cough, with albuminuria, pus and granular casts, followed by convulsions and death. In conclusion the author emphasized the importance of (1) the examination of the urine in all acute diseases of infancy and especially in the bronchopneumonia; (2) the importance of marked anemia as the most pronounced symptoms of kidney involvement; (3) that edema when present is a valuable symptom, but grave kidney involvement may exist without it; (4) there is almost always a diminution in the renal secretion; (5) the presence of grave nervous phenomena and convulsions.

**Importance of Dropsy as a Symptom.**—This was the title of the paper read by Dr. A. C. Morgan, in which he divided the condition into the unilateral, in which the cause exists in the immediate proximity; bilateral, which may be caused by obstruction of a corresponding point of the two sides affected; and the bilateral edema in which there is a central cause. The local variety is caused by pressure on the capillaries, veins or lymph spaces, and may be either acute, as from an abscess, in which it is caused by arterial dilatation; or chronic, as from lymphangitis, after operations or fractures of the bones. An important point is the association of edema of the ankles with anemia, accompanied by a slight irregular fever, oftentimes closely simulating the fever of incipient phthisis. The malloleolar dropsy in anemia is chiefly due to the decrease in the solid contents of the blood caused by the primary disease, such as Bright's disease, pernicious anemia, intestinal toxemia, chronic dysentery, scurvy or cachexia. In a transudate, the skin is cold, symmetrically swollen, pale, shiny and smooth, pitting on pressure, and slowly resuming its former shape. In an exudate the skin is hot, non-symmetrical, red, pitting on pressure, constantly painful—throbbing in character, the exudate being constantly mixed with blood and breaks only when the abscess points. Edema of the skin in contradistinction to a bulging indicates that the fluid contents are septic. He stated that dropsy should always be considered as a pathological condition, requiring for its cure proper medical or surgical attention, and should be given full importance in both, diagnosis, prognosis and treatment. He stated that, as a general rule, initial dropsy of Bright's disease appears as edema under the lower eyelids, seen upon arising in the morning, disappearing by night; in valvular heart disease,

myocarditis, lung or blood conditions, its first appearance is in the ankles, appearing late in the day and increasing toward night; and hydropertoneum or ascites is the first dropsy due to failure of compensation in the portal circulation, as in cirrhosis of the liver.

**Non-Medicinal Treatment of Dropsy.**—This was read by Dr. Albert G. Miller, in which he stated that there were frequently cases of edema due to cardiac or renal causes, which baffled the practitioner, if he relied upon drugs alone. Hygienic and dietetic measures should be resorted to, mental excitement avoided, as this will tend to functional cardiac derangement. The diet should be simple and the quantity limited; foods tending to produce gaseous distention or fermentation should be avoided, and if of nephritic origin the proteids should be reduced to a minimum. Water may be more limited in the cardiac than in the renal cases. The clothing should be carefully regulated, woolen undergarments being preferable throughout the year. Climatic surroundings should be carefully considered, prolonged residence in a warm, dry climate being often beneficial to the nephritic cases. Careful attention should be given to bathing—hot baths being favorable in renal, but not in cardiac cases; muscular strain and fatigue should be avoided and in severe cases, cessation of labor is desirable. Carefully regulated exercise and elevation of the part are also of value, and where there is no inflammation of the affected part, massage and electricity are of value. In some cases the use of kaolin spread thickly on the parts; and in nephritic cases, particularly if there be urinary suppression, the use of dry cups is of value. In severe cases, the employment of Southey's tubes; and in some cases accompanied by extreme cyanosis, bleeding to relieve the intracardial pressure, may be resorted to, either directly by opening a vein or by means of leeches and wet cups. In cases of transudation into the serous cavities paracentesis may be necessary.

Dr. Harry Lowenburg, in the discussion, emphasized the importance of the examination of the urine of infants as a routine measure, particularly those suffering from the infectious fevers, more especially scarlet fever, which he believed could be classified into the postscarlatinal and the septic nephritis. He believed that in nearly all cases of scarlet fever albuminuria was present at some period of the condition, and that if the skin is kept active by baths and alkaline, and fruit juices are given the patients to drink, the danger from nephritis will be reduced to a minimum. He reported the case of a colored boy whose only symptoms manifesting themselves were watering of the eyes and sneezing, the case having been diagnosed as one of hay fever. Urinary examination was suggested by slight puffiness under the eye, and there was also cardiac hypertrophy, displacement of the apex beat, and thickened arteries.

Dr. Hugh Hanna remarked the importance of early diagnosis and treatment of the nephritic condition, and reported the case of a mild scarlatinous condition, which was improving very nicely, when the patient, in the absence of the nurse, went to the window and from the effects of the cold air immediately developed nephritis, with almost complete suppression of urine for nearly forty-eight hours. By the use of actively eliminative preparations and large amounts of water the patient made a good recovery.

Dr. Luther C. Peter suggested the practicability of the employment of Fuller's earth or chalk with glycerin and some of the volatile oils.

Dr. H. C. Masland believed that the condition of the kidneys should be carefully watched throughout the course of all infectious diseases, and careful attention to any symptom arising he believed would oftentimes prevent permanent impairment or fatal results.

Dr. I. Valentine Levi reported three cases of scarlet fever in which examinations of the urine were made every other day, and no albumin was discovered, although casts were present in one, which he felt indicated the necessity of centrifugation and microscopical examination in all cases.

Dr. Arthur P. Hitchens reported that staphylococcus could be recovered from the kidneys of rabbits after five or six days, even although not strong enough to produce death, and the germs are more numerous in the kidneys than in any part of the body. With streptococcus, the reverse is true; they are practically never found in the kidneys unless the rabbit dies, and even then are much less numerous than in other parts of the bodies.

Dr. J. Thompson Schell stated that he had great difficulty in collecting the urine of infants for examination. He believed that infantile nephritis was a very frequent condition, and also that children were oftentimes born with a form of nephritis. He also felt that many cases of young infants were treated for ordinary colic when it was really of nephritic origin.

Dr. William L. Pepper reported a case of nephritic dropsy, which terminated favorably, in which the albuminuria was not increased by giving the patient a large amount of eggs.

Dr. Wm. Egbert Robertson felt that in many cases the term nephritic was a misnomer, as probably a majority of the cases of so-called nephritis, particularly all those accompanying infectious diseases, were cases of toxic degeneration. He thought that the urine from a male baby comparatively easy of collection by the use of a small bag such as is sometimes worn by adults in cases of urinary incontinence. He stated that the youngest case of this condition he had ever seen occurred in a male infant six weeks old, following an enteritis. There was anemia, but no edema, albumin, leucin and tyrosin were present in the urine. Autopsy revealed a septic infarct in the lung, from which area and the heart blood streptococcus was recovered. He divided the condition into the infectious and the metabolic, which may be due to altered metabolism, which may be due to external agencies, such as lead and other metallic poisons or to syphilis, gout and possibly rheumatism. He recommended careful examination of the urine, both for albumin and microscopically for casts in all cases of infectious diseases. Dropsy due to renal conditions, he stated, did not terminate fatally nearly so quickly as that due to cardiac disturbance, and as in renal conditions, there is usually an associated heart lesion, he felt there was a possibility of increasing the cardiac hypertrophy by the too free administration of water in the renal cases.

Dr. Ellis E. W. Given stated that at the Children's Hospital a wide-mouthed bottle was employed for the collection of urine from the male infants, and the child kept as quiet as possible, but that for female infants, the only means that could be employed was a catheter (which it was very difficult to obtain small enough), or absorbent cotton.

Dr. A. C. Morgan, in closing, stated the best method of collecting the urine was to excite urination by putting a grain or two of salt upon the lips of the meatus, or if the child is old enough, to be responsive to stimuli, running water excites urination, and then you can collect the urine in a vessel. He further stated that he had seen one case of edema of the chest wall, occurring in a woman at Blockley, the process having been present for over a year.

Dr. A. G. Miller, in closing, stated that the effect of the kaolin is due entirely to the abstraction of fluid or some toxic principle, and the remedy requires great nicety of preparation, as if too much glycerin is used,

it will not stay on well, and if too much clay is employed, it will be too hard to produce any effect.

Dr. Charles C. Biedert, in closing, stated that he saw no objection to the employment of the catheter in female infants, having used it with no untoward results. In none of the cases reported was the albumin sufficient to estimate quantitatively, and in all hyaline and granular casts and some kidney cells were present.

### BOOK REVIEWS.

**THE MEDICAL RECORD VISITING LIST OR PHYSICIAN'S DIARY FOR 1904.** New revised edition. William Wood & Co, New York.

THIS new edition has been revised and improved in many ways. The amount of matter bearing upon emergencies of all kinds has been increased and questions of dosage and the like, particularly of some of the older drugs, have been eliminated. A welcome addition is the introduction of both the English and French systems. The hints on the writing of wills by a member of the New York bar may save many practitioners from unwelcome legal complications. The List is attractively bound in black leather and is in every way highly creditable to the house which furnishes it.

**SOCIAL DISEASES AND MARRIAGE—SOCIAL PROPHYLAXIS.** By PRINCE A. MORROW, A.M., M.D. Lea Brothers & Co., New York and Philadelphia.

AMPLE justification for the appearance of this work is furnished by the author in the preface, wherein he states: "There is no comprehensive treatise in our language upon this subject."

A portion of the field had been already covered by Dr. Morrow's translation of Fournier's classical monograph upon Syphilis and Marriage, yet an equally important portion has never taken definite shape in a formal treatise—namely, the relation that gonorrhea holds to matrimony, a field fully covered by the present volume.

Dr. Morrow clothes his ideas in language that flows gracefully from a willing pen; words that, at times, become crystallized into a form akin to epigram—"The present of syphilis is never the mirror of the future"—and make very agreeable reading.

This ease of diction gives the book almost a popular character.

Its line of argument could be as easily followed by the layman as by the physician, and the facts presented would be a potent incentive to a correct course of life if laid, even in their present form, before any self-respecting young man.

Moreover, the whole tone of the book is stamped with honesty. It becomes sometimes almost an appeal, glowing with the warmth of personal conviction fortified by knowledge.

The four pages upon the Causes of Prostitution (320 *et seq.*) are peculiarly forceful and bristle with suggestion.

The word-painting, always vivid, is at times impressionistic, never lurid, never gruesome.

Chapter XXX is rather a dramatic presentation of the dangers introduced by syphilis into marriage, but for that reason the more graphic.

To Gonorrhea is given about one-quarter of the text; and its relation to marriage is followed up through the possible sterility it may impose upon both sexes through the distortions of gonorrheal rheumatism, the ophthalmia neonatorum and vulvovaginitis of the young, the possible blindness at any time of life, to the final tubal,

peritoneal and septic complications of the innocent victim.

Syphilis, in like manner, is carried through its relations to the individual into the parasyphilitic and late dystrophical terminations.

The medical secret is discussed in a spirit of cautious protest, and, in the way of prophylaxis, a broader education of the young is advocated as the most potent factor.

Excellent chapter heads and a full index facilitate reference. E. L. KEYES.

**THE PRACTICAL APPLICATION OF THE ROENTGEN RAYS IN THERAPEUTICS AND DIAGNOSIS.** By WM. A. PUSEY, A.M., M.D., Professor of Dermatology in the University of Illinois; Member of the American Dermatological Association; and EUGENE W. CALDWELL, B.S., Director of the Edward N. Gibbs X-Ray Laboratory, University and Bellevue Hospital Medical College, New York; Member of the Roentgen Society of London. W. B. Saunders & Co., New York, Philadelphia and London.

SOMEWHAT more than a third of the present volume is devoted to a discussion of the apparatus used in X-ray work and the various technical methods involved in its application to diagnosis and treatment. The second larger part of the book is the work of the senior author, and summarizes the present status of our knowledge in regard to the therapeutics of this new agent, together with a report of cases from his own experience.

With such a variety of types of apparatus on the market it is of the greatest value to anyone contemplating an excursion into this fascinating realm of clinical physics to have their underlying principles, and consequently, fields of usefulness so clearly indicated as in the first part of this book. Each element in the make-up of the X-ray outfit is described and the fitness of the different varieties of each for special purposes pointed out. Directions as explicit as is possible in an art which, like all arts, is mainly dominated by rule of thumb precepts, are given and many ingenious and effective devices, the product of the author's experience, described. Among these are special types of tubes for use in making therapeutic applications of the rays to various cavities of the body, apparatus for localizing foreign bodies and for making stereoscopic radiographs, a special electrolytic interrupter, a clever system of filing negatives, a dark lantern, a screen for viewing negatives, etc.

The second part contains chapters on the effects of the Roentgen ray in healthy and diseased tissues, the philosophy of its remedial action in certain diseases, the technic of its application and very numerous case histories. The value of X-ray therapy in hypertrichosis, acne and syccosis is said to be above question. In trichotomys and favus its use is less well established, but is worthy of persistent trial, while in certain forms of eczema, lichen planus and psoriasis it has a distinct field of usefulness. Lupus erythematosus is yet unconquered, but lupus vulgaris has succumbed to the new treatment. In regard to malignant disease the author takes the optimistic ground usual to dermatologists and ascribes most brilliant results to the method. Cases in which it is particularly useful are inoperable cases, those where much tissue cannot be sacrificed, and as a temporary measure to prevent spread of the disease in cases where operation cannot immediately be performed. This section is most valuable and interesting, though its attractiveness is marred by the author's careless literary form.

A number of excellent plates and many illustrations in the text, together with beautiful presswork, contribute much to the interest of the volume.